Pioneer sound.vision.soul

Service Manual

ORDER NO.
RRV3790

HDD/DVD RECORDER

DVR-660H-S

DVR-560H-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Serial No. Please confirm 3rd & 4th alphabetical letters.
DVR-660H-S	TFXV	AC 110 V to 240 V	3	&&DL######$$
DVR-660H-S	TAXV5	AC 110 V to 240 V	6	&&DL######$$
DVR-560H-S	TFXV	AC 110 V to 240 V	3	&&DL######$$
DVR-560H-S	TAXV5	AC 110 V to 240 V	6	&&DL######$$

This service manual should be used together with the following manual(s).

Model No.	Order No.	Remarks
DVR-660H-K/KCXV	RRV3751	

For SPECIFICATIONS and PANEL FACILITIES, refer to the operating instructions.

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
©PIONEER CORPORATION 2008

T-ZZA-001 JUNE 2008 Printed in Japan

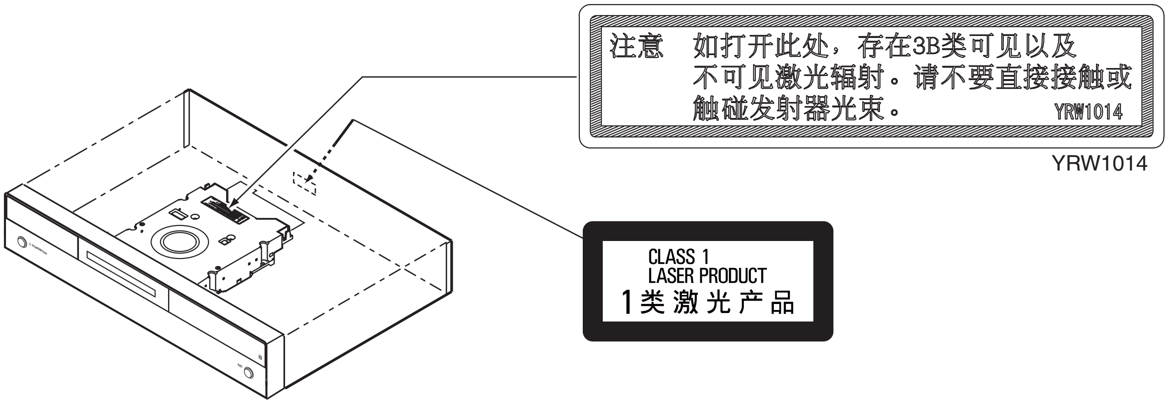
CONTENTS

SAFETY INFORMATION 2

1. CONTRAST OF MISCELLANEOUS PARTS 3
   1.1 DVR-660H-K/TFXV AND TAXV5 3
   1.2 DVR-560H-K/TFXV AND TAXV5 4
2. PCB PARTS LIST 5
3. SERVICE MODE 12
4. SCHEMATIC DIAGRAM 14
   4.1 POWER SUPPLY ASSY 14
5. PCB CONNECTION DIAGRAM 16
   5.1 POWER SUPPLY ASSY 16

SAFETY INFORMATION

LABEL CHECK (For TAXV5 type)


注意　如打开此处，存在3B类可见以及
不可见激光辐射。请不要直接接触或
触碰发射器光束。
YRW1014
YRW1014
CLASS 1
LASER PRODUCT
1类激光产品

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

1.1 DVR-660H-K/TFXV AND TAXV5

DVR-660H-K/KCXV, DVR-660H-S/TFXV and TAXV5 are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-660H-K/ KCXV	DVR-660H-S/ TFXV	DVR-660H-S/ TAXV5	Remarks
		PCB ASSEMBLIES				
	P101-1	1.. ETAB Assy	VWV2344	Not used	Not used	
NSP		1.. TUJB ASSY	YWM1007	YWM1007	YWM1008	
	P101-3	2.. SERVICE TUJB Assy	YXX1011	YXX1011	YXX1013	*1
	P105-1	SERVICE MAIN Assy	VXX3309	VXX3308	VXX3308	*2
⚠	P101-6	POWER SUPPLY Assy	VWR1408	VWR1407	VWR1407	*3
		PACKING SECTION				
⚠	P99-1	Power Cable	ADG7021	ADG7097	ADG7083	
	P99-3	RF Antenna Cable	VDE1088	VDE1088	VDE1095	
	P99-5	Remote Control	VXX3288	VXX3289	VXX3289	
	P99-8	Operating Instructions (English)	VRB1490	VRB1491	Not used	
	P99-9	Operating Instructions (French)	VRC1461	Not used	Not used	
	P99-10	Quick Start Guide (English)	VRG1025	Not used	Not used	
	P99-11	Quick Start Guide (French)	VRG1026	Not used	Not used	
		Operating Instructions (Trad-Chinese)	Not used	VRC1480	Not used	
		Operating Instructions (Simp-Chinese)	Not used	Not used	VRC1481	
	P99-13	HDD Caution 8L	VRR1071	VRR1071	Not used	
	P99-14	HDD Caution 8L B	VRR1076	VRR1076	Not used	
		HDD Caution (Chinese)	Not used	Not used	VRR1073	
NSP	P99-16	Warranty Card	ARY7045	Not used	ARY7116	
	P99-25	Packing Case	YHG1012	YHG1017	YHG1018	
		EXTERIOR SECTION				
NSP	P101-5	SERVICE LOADER MAIN	VXU1014	VXU1013	VXU1013	
	P101-28	Bonnet S	YXX1009	YXX1010	YXX1010	
	P101-36	DV Angle	VNE2474	VNE2453	VNE2453	
	P101-38	Rear Panel	YNA1034	YNA1036	YNA1026	
	P101-39	LAN Angle	YNE1001	Not used	Not used	
	P101-42	Tray Panel	YNK1038	YXA1051	YXA1051	
NSP	P101-43	ID Label Assy	VXW1019	VXW1015	VXW1015	
	P101-44	Laser Caution Label	VRW2262	VRW2262	YRW1014	
	P101-60	Screw	BSZ30P060FBN	BSZ30P060FTC	BSZ30P060FTC	For Bonnet S
NSP		CCC S&E Label	Not used	Not used	DRW2310	Rear Panel
		FRONT PANEL SECTION				
	P103-3	Pioneer Name Plate	VAM1153	VAM1148	VAM1148	
	P103-11	CI Cover	VNK6229	VNK6188	VNK6188	
	P103-12	Key Top PW	VNK6239	VNK6359	VNK6359	
	P103-13	Key Top REC	VNK6240	VNK6361	VNK6361	
	P103-22	Door PTD	YXA1037	YXA1043	YXA1043	
NSP	P103-23	Front Panel PTD	YXA1058	YXA1061	YXA1061	
	P103-25	Function Key PTD	YXA1054	YXA1053	YXA1053	
	P103-27	Front Panel Assy S	YXA1067	YXA1069	YXA1069	

*1: Refer to SERVICE TUJB Assy for DVR-660H-K/KCXV.

*2: Refer to SERVICE MAIN Assy for DVR-660H-K/KCXV.

*3: POWER SUPPLY Assy has no service part.

1.2 DVR-560H-K/TFXV AND TAXV5

DVR-560H-K/KCXV, DVR-560H-S/TFXV and TAXV5 are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-560H-K/ KCXV	DVR-560H-S/ TFXV	DVR-560H-S/ TAXV5	Remarks
		PCB ASSEMBLIES				
NSP		1.. TUJB ASSY	YWM1007	YWM1007	YWM1008	
	P101-3	2.. SERVICE TUJB Assy	YXX1011	YXX1011	YXX1013	*1
⚠	P101-6	POWER SUPPLY Assy	VWR1408	VWR1407	VWR1407	*2
		PACKING SECTION				
⚠	P99-1	Power Cable	ADG7021	ADG7097	ADG7083	
	P99-3	RF Antenna Cable	VDE1088	VDE1088	VDE1095	
	P99-5	Remote Control	VXX3288	VXX3289	VXX3289	
	P99-8	Operating Instructions (English)	VRB1490	VRB1491	Not used	
	P99-9	Operating Instructions (French)	VRC1461	Not used	Not used	
	P99-10	Quick Start Guide (English)	VRG1025	Not used	Not used	
	P99-11	Quick Start Guide (French)	VRG1026	Not used	Not used	
		Operating Instructions (Trad-Chinese)	Not used	VRC1480	Not used	
		Operating Instructions (Simp-Chinese)	Not used	Not used	VRC1481	
	P99-13	HDD Caution 8L	VRR1071	VRR1071	Not used	
	P99-14	HDD Caution 8L B	VRR1076	VRR1076	Not used	
		HDD Caution (Chinese)	Not used	Not used	VRR1073	
NSP	P99-16	Warranty Card	ARY7045	Not used	ARY7116	
	P99-25	Packing Case	YHG1013	YHG1021	YHG1022	
		EXTERIOR SECTION				
	P101-28	Bonnet S	YXX1009	YXX1010	YXX1010	
	P101-36	DV Angle	VNE2474	VNE2453	VNE2453	
	P101-38	Rear Panel	YNA1035	YNA1037	YNA1021	
	P101-42	Tray Panel	YNK1038	YXA1051	YXA1051	
	P101-44	Laser Caution Label	VRW2262	VRW2262	YRW1014	
	P101-60	Screw	BSZ30P060FBN	BSZ30P060FTC	BSZ30P060FTC	For Bonnet S
NSP		CCC S&E Label	Not used	Not used	DRW2310	Rear Panel
		FRONT PANEL SECTION				
	P103-3	Pioneer Name Plate	VAM1153	VAM1148	VAM1148	
	P103-11	CI Cover	VNK6229	VNK6188	VNK6188	
	P103-12	Key Top PW	VNK6239	VNK6359	VNK6359	
	P103-13	Key Top REC	VNK6240	VNK6361	VNK6361	
	P103-22	Door PTD	YXA1037	YXA1041	YXA1041	
NSP	P103-23	Front Panel PTD	YXA1058	YXA1061	YXA1061	
	P103-25	Function Key PTD	YXA1054	YXA1053	YXA1053	
	P103-27	Front Panel Assy S	YXA1067	YXA1069	YXA1069	

*1: Refer toSERVICE TUJB Assy for DVR-660H-K/KCXV.

*2: POWER SUPPLY Assy has no service part.

2. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47 k ohm (tolerance is shown by J = 5%, and K = 10%).
  560 Ω → 56×10^1 → 561 .... RD1/4PU$\boxed{5}\boxed{6}\boxed{1}$J
  47 kΩ → 47×10^3 → 473 .... RD1/4PU$\boxed{4}\boxed{7}\boxed{3}$J
  0.5 Ω → R50 .... RN2H$\boxed{R}\boxed{5}\boxed{0}$K
  1 Ω → 1R0 .... RS1P$\boxed{1}\boxed{R}\boxed{0}$K
  Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
  5.62 kΩ → 562×10^1 → 5621 .... RN1/4PC$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F
- *Meaning of the figures and others in the parentheses in the parts list.*
  Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.
  IC 301 (A, 91, 111) IC NJM2068V

A F SERVICE TUJB ASSY

MISCELLANEOUS

Mark	No.	Description	Part No.
	IC 101	(A,201,131) MICROCOMPUTER IC	PMC026A8
	IC 102	(A,225,166) RESET IC	BD4846G
	IC 104	(A,175,152) IC	TC7MB3257FK
⚠	IC 150	(B,229,147) FUSE	CEK1278
⚠	IC 317	(B,167,59) FUSE	CEK1278
	IC 401	(A,94,122) IC FOR DVD REC	HA118326APFR
	IC 402	(A,119,99) OP-AMP IC	BA4560RF
	IC 601	(A,118,174) MULTI SOUND DECODER	MSP3455G
	Q 101	(A,218,157) DIGITAL TRANSISTOR	DTC124EUA
	Q 201	(B,196,68) TRANSISTOR	2SD2114K
	Q 301	(A,155,170) TRANSISTOR	UMD2N
	Q 302	(B,158,171) TRANSISTOR	2SC4081
	Q 303	(A,153,183) TRANSISTOR	UMD2N
	Q 304	(A,160,180) TRANSISTOR	2SD2153
	Q 305	(B,179,66) TRANSISTOR	UMD2N
	Q 306	(B,185,66) TRANSISTOR	2SC2411K
	Q 307	(B,170,59) TRANSISTOR	UMD2N
	Q 308	(B,170,67) TRANSISTOR	2SC2411K
	Q 309	(B,163,56) TRANSISTOR	2SC5876
	Q 310	(B,159,69) TRANSISTOR	2SC4081
	Q 311	(B,156,60) CHIP TRANSISTOR	HN1A01FU
	Q 403	(A,94,99) TRANSISTOR	2SA1576A
	Q 404	(A,93,83) TRANSISTOR	UMD2N
	Q 405	(A,90,99) TRANSISTOR	2SC4081
	Q 406	(A,42,78) TRANSISTOR	2SD2114K
	Q 407	(A,42,97) TRANSISTOR	2SD2114K
	Q 408	(A,42,84) TRANSISTOR	2SD2114K
	Q 409	(A,48,100) TRANSISTOR	2SD2114K
	Q 410	(A,87,96) TRANSISTOR	2SC4081
	Q 601	(B,66,172) TRANSISTOR	2SA1576A
	Q 602	(B,59,163) TRANSISTOR	2SA1576A
	Q 604	(A,139,174) TRANSISTOR	2SA1576A
	Q 605	(A,139,169) TRANSISTOR	2SA1576A
	Q 606	(B,84,181) TRANSISTOR	2SC4081
	D 101	(A,221,164) DIODE	1SS355
	D 102	(A,218,163) DIODE	1SS355
	D 103	(A,150,63) DIODE	1SS355
	D 104	(B,167,176) DIODE	1SR154-400
	D 110	(B,174,176) DIODE	1SS352
	D 201	(B,189,62) DIODE	1SS355
	D 301	(B,172,48) DIODE	UDZS15(B)
	D 302	(B,176,72) DIODE	UDZS9R1(B)
	D 303	(B,160,54) DIODE	1SS355
	D 304	(B,174,69) DIODE	1SS355
	D 401	(A,107,96) DIODE	UDZS11(B)
	D 402	(A,74,150) DIODE	UDZS6R8(B)
	D 418	(B,93,79) DIODE	1SS355
	D 419	(A,97,84) DIODE	1SS355
	D 701	(B,29,33) DIODE	1SS355
	L 201	(A,192,60) RADIAL INDUCTOR	ATH1109
	L 303	(B,161,175) INDUCTOR	CTF1399
	L 304	(A,160,65) RADIAL INDUCTOR	LFCA331J
	L 305	(B,159,46) INDUCTOR	CTF1399
	L 601	(B,31,173) INDUCTOR	CTF1399
	L 602	(B,86,172) INDUCTOR	CTF1399
	L 604	(B,43,172) INDUCTOR	CTF1306
	L 605	(B,47,172) INDUCTOR	CTF1306
	L 606	(B,124,167) INDUCTOR	CTF1399
	L 607	(B,88,174) COIL	LCYA101J2520
	L 608	(B,146,178) INDUCTOR	CTF1399
	L 609	(B,91,178) INDUCTOR	LCYA100J2520
	JA 402	(A,17,78) 9P PIN JACK	VKB1250
	JA 403	(A,17,132) JACK	VKB1183
	JA 701	(A,18,25) JACK	RKN1004
	KN 101	(A,131,184) WRAPPING TERMINAL	VNF1084
	KN 102	(A,192,46) WRAPPING TERMINAL	VNF1084
	X 101	(A,204,157) CRYSTAL OSCILLATOR (15.0 MHZ)	CSS1653
	X 102	(A,210,156) CRYSTAL RESONATOR (32 KHz)	VSS1197
	X 601	(A,100,173) CERAMIC RESONATOR (18.432 MHZ)	VSS1189
	CN 101	(A,35,23) 40P CONNECTOR	VKN2007
	CN 103	(A,235,159) 9P CONNECTOR	VKN2015
	CN 105	(A,232,148) CONNECTOR	HLEM17S-1
	CN 106	(A,238,107) CONNECTOR	HLEM11S-1
	CN 201	(A,149,43) CONNECTOR	S2B-PH-K-S
	CN 301	(A,178,35) CONNECTOR	S5B-PH-K-S
	401	2P 4PIN MINIDIN(S)	AKP1234
⚠	BT 101	(A,179,180) LITHIUM BATTERY	VEM1037
	U 601	(A,26,178) TV TUNER PACK	VXF1105

RESISTORS

Mark	No.	Description	Part No.
R	101	(A,187,125)	RS1/16S101J
R	102	(A,182,123)	RS1/16S101J
R	103	(A,187,118)	RS1/16S101J
R	104	(A,224,158)	RS1/16S473J
R	105	(A,215,149)	RS1/16S101J
R	106	(A,221,158)	RS1/16S0R0J
R	107	(A,224,159)	RS1/16S103J
R	109	(A,212,144)	RS1/16S331J
R	110	(A,211,144)	RS1/16S101J
R	111	(A,212,149)	RS1/16S101J
R	112	(A,222,161)	RS1/16S103J
R	113	(A,219,161)	RS1/16S0R0J
R	116	(B,208,153)	RS1/16S224J
R	117	(A,204,145)	RS1/16S105J
R	118	(B,201,150)	RS1/16S0R0J
R	119	(A,192,167) CARBON FILM RESISTOR	RD1/4PU333J
R	120	(A,197,163) CARBON FILM RESISTOR	RD1/4PU273J
R	123	(A,197,149)	RS1/16S101J
R	124	(A,197,146)	RS1/16S101J
R	126	(A,194,147)	RS1/16S101J
R	129	(A,195,149)	RS1/16S101J
R	130	(B,235,155)	RS1/16S0R0J
R	131	(A,190,153)	RS1/16S104J
R	134	(A,187,148)	RS1/16S102J
R	135	(A,185,152)	RS1/16S102J
R	136	(A,189,148)	RS1/16S102J
R	139	(A,184,149)	RS1/16S682J
R	140	(A,182,148)	RS1/16S470J
R	141	(A,182,151)	RS1/16S682J
R	142	(A,181,151)	RS1/16S470J
R	143	(A,183,145)	RS1/16S101J
R	144	(A,185,139)	RS1/16S0R0J
R	145	(A,183,130)	RS1/16S104J
R	149	(A,188,119)	RS1/16S0R0J
R	150	(A,190,117)	RS1/16S0R0J
R	151	(A,195,118)	RS1/16S0R0J
R	152	(A,200,83)	RS1/16S101J
R	153	(A,198,116)	RS1/16S101J
R	154	(B,202,113)	RS1/16S101J
R	155	(A,201,84)	RS1/16S101J
R	156	(A,201,116)	RS1/16S101J
R	157	(A,203,117)	RS1/16S104J
R	158	(A,202,119)	RS1/16S104J
R	159	(A,205,117)	RS1/16S0R0J
R	160	(A,206,114)	RS1/16S101J
R	161	(A,201,108)	RS1/16S0R0J
R	165	(A,206,117)	RS1/16S104J
R	167	(A,208,114)	RS1/16S101J
R	168	(A,211,112)	RS1/16S181J
R	170	(B,205,123)	RS1/16S104J
R	171	(A,215,114)	RS1/16S101J
R	172	(A,216,114)	RS1/16S101J
R	173	(A,218,113)	RS1/16S104J
R	174	(A,217,111)	RS1/16S104J
R	175	(A,219,113)	RS1/16S331J
R	176	(A,220,124)	RS1/16S102J
R	180	(A,221,132)	RS1/16S101J
R	181	(A,218,133)	RS1/16S101J
R	182	(A,221,134)	RS1/16S101J
R	183	(A,218,135)	RS1/16S101J
R	184	(A,221,136)	RS1/16S101J
R	188	(A,221,140)	RS1/16S331J
R	189	(A,221,142)	RS1/16S471J
R	193	(B,230,171)	RS1/16S104J
R	194	(B,236,171)	RS1/16S104J
R	195	(B,228,171)	RS1/16S104J
R	196	(B,238,171)	RS1/16S101J
R	197	(A,52,22)	RS1/16S0R0J
R	199	(A,209,110)	RS1/16S101J
R	200	(A,221,143)	RS1/16S101J
R	204	(A,182,136)	RS1/16S101J
R	205	(A,185,134)	RS1/16S101J
R	211	(B,179,175)	RS1/16S102J
R	212	(A,196,96)	RS1/16S0R0J
R	213	(A,192,156)	RS1/16S103J
R	218	(A,184,60)	RS1/10S0R0J
R	219	(B,195,74)	RS1/16S332J
R	220	(B,196,71)	RS1/16S222J
R	221	(A,177,145)	RS1/16S101J
R	222	(A,184,140)	RS1/16S0R0J
R	223	(A,174,157)	RS1/16S101J
R	224	(A,177,156)	RS1/16S101J
R	228	(A,196,160)	RS1/16S0R0J
R	251	(B,147,48)	RS1/10S0R0J
R	302	(B,176,55)	RS1/10S0R0J
R	303	(B,179,55)	RS1/10S0R0J
R	304	(B,159,176)	RS1/16S101J
R	305	(B,158,180)	RS1/16S330J
R	306	(B,180,62)	RS1/16S330J
R	307	(A,161,103)	RS1/10S0R0J
R	308	(A,161,101)	RS1/10S0R0J
R	309	(B,170,56)	RS1/16S152J
R	310	(B,162,61)	RS1/16S472J
R	311	(B,162,71)	RS1/16S821J
R	312	(B,153,58)	RS1/16S103J
R	313	(B,158,54)	RS1/16S184J
R	314	(B,154,67)	RS1/16S223J
R	315	(B,156,54)	RS1/16S1003F
R	316	(B,154,54)	RS1/16S2202F
R	318	(B,160,180)	RS1/16S0R0J
R	401	(A,98,100)	RS1/10S0R0J
R	404	(A,104,99)	RS1/10S0R0J
R	407	(A,58,116)	RS1/10S0R0J
R	408	(A,117,114)	RS1/16S471J
R	410	(A,89,106)	RS1/16S103J
R	412	(B,90,126)	RS1/16S185J
R	413	(A,117,117)	RS1/16S471J
R	414	(A,115,122)	RS1/16S471J
R	415	(A,115,124)	RS1/16S471J
R	416	(A,116,126)	RS1/16S471J
R	417	(A,116,128)	RS1/16S471J
R	418	(A,116,130)	RS1/16S471J
R	419	(A,116,132)	RS1/16S471J
R	420	(B,91,130)	RS1/16S185J
R	421	(A,112,135)	RS1/16S105J
R	422	(A,111,113)	RS1/16S103J

Mark	No.	Description	Part No.
R	423	(A,117,135)	RS1/10S75R0F
R	424	(A,104,134)	RS1/16S105J
R	425	(B,98,126)	RS1/16S104J
R	426	(A,107,140)	RS1/10S75R0F
R	428	(B,97,131)	RS1/16S0R0J
R	430	(A,100,143)	RS1/16S105J
R	431	(A,95,136)	RS1/16S105J
R	432	(A,93,145)	RS1/16S105J
R	433	(B,48,68) CHIP TYPE RESISTOR	RS1/10S68R0F
R	434	(B,46,68)	RS1/10S3R9J
R	436	(A,78,119)	RS1/16S101J
R	437	(A,78,121)	RS1/16S101J
R	438	(A,73,147)	RS1/10S0R0J
R	439	(B,90,125)	RS1/16S185J
R	441	(A,97,153)	RS1/10S75R0F
R	442	(A,91,150)	RS1/10S75R0F
R	443	(A,105,143)	RS1/10S75R0F
R	444	(A,99,149)	RS1/10S75R0F
R	445	(A,101,151)	RS1/10S75R0F
R	446	(A,103,144)	RS1/10S75R0F
R	447	(A,94,151)	RS1/10S75R0F
R	448	(A,75,147)	RS1/10S0R0J
R	450	(B,39,142)	RS1/16S101J
R	451	(B,41,142)	RS1/16S104J
R	452	(B,43,156)	RS1/16S104J
R	453	(A,124,103)	RS1/16S8201F
R	454	(A,106,108)	RS1/16S1002F
R	455	(A,94,103)	RS1/16S470J
R	458	(A,96,98)	RS1/16S471J
R	459	(A,89,103)	RS1/16S471J
R	460	(A,91,103)	RS1/16S470J
R	461	(A,84,97)	RS1/16S681J
R	462	(A,108,105)	RS1/16S1002F
R	463	(A,112,100)	RS1/16S8201F
R	464	(B,40,39) CHIP TYPE RESISTOR	RS1/10S68R0F
R	465	(A,88,100)	RS1/16S471J
R	466	(B,37,39)	RS1/10S3R9J
R	467	(B,41,56) CHIP TYPE RESISTOR	RS1/10S68R0F
R	468	(B,40,45) CHIP TYPE RESISTOR	RS1/10S68R0F
R	469	(B,37,45)	RS1/10S3R9J
R	470	(B,43,50) CHIP TYPE RESISTOR	RS1/10S68R0F
R	471	(B,41,50)	RS1/10S3R9J
R	472	(B,41,89) CHIP TYPE RESISTOR	RS1/10S68R0F
R	473	(B,39,89)	RS1/10S3R9J
R	474	(B,48,80) CHIP TYPE RESISTOR	RS1/10S68R0F
R	475	(B,46,80)	RS1/10S3R9J
R	476	(B,46,74) CHIP TYPE RESISTOR	RS1/10S68R0F
R	477	(B,41,74)	RS1/10S3R9J
R	478	(B,39,61) CHIP TYPE RESISTOR	RS1/10S68R0F
R	479	(A,45,79)	RS1/16S471J
R	480	(B,37,61)	RS1/10S3R9J
R	481	(B,38,56)	RS1/10S3R9J
R	482	(B,35,75)	RS1/16S101J
R	483	(A,47,84)	RS1/16S471J
R	484	(A,42,81)	RS1/16S102J
R	485	(B,49,83)	RS1/16S223J
R	486	(A,44,100)	RS1/16S102J
R	487	(A,41,87)	RS1/16S102J
R	488	(A,42,94)	RS1/16S471J

Mark	No.	Description	Part No.
R	489	(B,48,94)	RS1/16S223J
R	490	(B,34,89)	RS1/16S101J
R	491	(A,50,100)	RS1/16S102J
R	492	(A,48,97)	RS1/16S471J
R	493	(B,43,83)	RS1/16S101J
R	494	(B,43,96)	RS1/16S101J
R	495	(B,39,156)	RS1/16S101J
R	496	(B,43,150)	RS1/16S104J
R	497	(B,39,150)	RS1/16S101J
R	498	(B,39,164)	RS1/16S101J
R	499	(B,43,162)	RS1/16S104J
R	602	(B,63,170)	RS1/16S102J
R	603	(B,51,171)	RS1/16S0R0J
R	605	(B,83,170)	RS1/16S103J
R	606	(B,77,172)	RS1/16S103J
R	607	(B,56,166)	RS1/16S102J
R	608	(B,29,183)	RS1/16S0R0J
R	609	(B,26,174)	RS1/16S0R0J
R	610	(B,54,174)	RS1/16S0R0J
R	611	(B,59,174)	RS1/16S0R0J
R	615	(A,118,184)	RS1/16S0R0J
R	616	(B,103,172)	RS1/16S0R0J
R	619	(A,108,168)	RS1/16S103J
R	620	(A,126,163)	RS1/16S0R0J
R	621	(A,109,162)	RS1/16S101J
R	622	(A,110,160)	RS1/16S101J
R	623	(B,134,175)	RS1/16S102J
R	624	(A,129,174)	RS1/16S332J
R	625	(A,131,175)	RS1/16S332J
R	626	(B,144,176)	RS1/16S102J
R	627	(A,131,172)	RS1/16S332J
R	628	(A,134,171)	RS1/16S332J
R	630	(B,88,181)	RS1/16S331J
R	631	(B,81,181)	RS1/16S472J
R	632	(B,77,182)	RS1/16S220J
R	633	(B,79,181)	RS1/16S101J
R	634	(B,77,179)	RS1/16S222J
R	635	(B,65,175)	RS1/16S0R0J
R	636	(B,55,187)	RS1/16S0R0J
R	637	(B,77,185)	RS1/16S0R0J
R	701	(B,36,34)	RS1/16S224J
R	702	(B,27,32)	RS1/16S221J
R	704	(B,31,32)	RS1/16S221J

CAPACITORS

Mark	No.	Description	Part No.
C	104	(A,216,147)	CEAT220M25
C	105	(A,223,156)	CKSRYF104Z25
C	106	(A,226,169)	CKSRYF104Z25
C	107	(A,209,144)	CCSRCH331J50
C	109	(A,218,155)	CKSRYF104Z25
C	110	(A,219,164)	CKSRYB105K10
C	111	(B,214,159)	CCSRCH120J50
C	112	(B,210,159)	CCSRCH120J50
C	113	(A,201,145)	CKSRYF105Z10
C	114	(B,201,158)	CCSRCH150J50
C	115	(B,200,153)	CCSRCH150J50
C	120	(B,165,179)	CKSRYF104Z25
C	121	(B,237,153)	CKSRYF105Z10
C	122	(B,173,181)	CKSRYF105Z10
C	123	(A,171,178)	CEAT221M6R3

Mark	No.	Description	Part No.
	C 126	(A,187,132)	CKSRYF104Z25
	C 131	(A,192,119)	CKSRYF104Z25
	C 132	(A,193,116)	CKSRYF104Z25
	C 133	(A,197,110)	CKSRYF104Z25
	C 134	(A,203,106)	CKSRYF104Z25
	C 136	(A,213,121)	CKSRYF105Z10
	C 138	(A,221,119)	CEAT2R2M50
	C 139	(A,216,126)	CKSRYF104Z25
	C 140	(A,216,130)	CKSRYF104Z25
	C 141	(A,172,157)	CKSRYF105Z10
	C 142	(A,172,159)	CCSRCH102J50
	C 147	(B,231,159)	CKSRYF104Z25
	C 152	(A,196,97)	CKSRYF105Z10
	C 154	(B,229,143)	CKSRYF104Z25
	C 155	(B,239,153)	CCSRCH102J50
	C 202	(B,186,59)	CKSRYF104Z25
	C 204	(A,187,55)	CEAT101M16
	C 205	(A,184,50)	CEAT220M25
	C 206	(B,193,72)	CCSRCH471J50
	C 208	(B,149,46)	CKSRYB104K16
	C 211	(A,191,150)	CKSRYF104Z25
	C 301	(B,168,43)	CKSRYF104Z25
	C 302	(B,176,40)	CKSRYF104Z25
	C 303	(A,169,46)	CEAT101M16
	C 304	(A,176,45)	CEAT101M16
	C 305	(B,155,173)	CKSRYF104Z25
	C 306	(B,162,169)	CKSRYF104Z25
	C 307	(A,155,165)	CEAT101M16
	C 308	(A,150,174)	CEAT101M16
	C 309	(B,164,182)	CKSRYF104Z25
	C 310	(B,165,189)	CKSRYF104Z25
	C 311	(A,162,188)	CEAT221M16
	C 312	(A,149,182)	CEAT101M16
	C 313	(B,179,60)	CKSRYF105Z10
	C 314	(B,179,70)	CKSRYF104Z25
	C 315	(A,181,73)	CEAT101M16
	C 316	(A,188,71)	CEAT101M16
	C 317	(B,170,54)	CKSRYF104Z25
	C 318	(B,170,64)	CKSRYF104Z25
	C 319	(A,175,65)	CEAT101M16
	C 320	(A,167,71)	CEAT101M16
	C 321	(B,166,61)	CKSRYF104Z25
	C 322	(B,164,59)	CCSRCH101J50
	C 323	(B,163,53) CERAMIC CAPACITOR	CKSQYF105Z50
	C 324	(B,156,64)	CKSRYF104Z25
	C 326	(A,159,50)	CEAT100M50
	C 328	(B,157,44)	CKSRYF104Z50
	C 329	(B,146,184)	CKSRYF104Z25
	C 401	(A,100,109)	CKSRYF105Z10
	C 402	(A,108,102)	CKSRYF104Z25
	C 403	(A,104,104)	CKSRYF104Z25
	C 404	(A,93,111)	CKSRYF105Z10
	C 406	(A,86,106)	CKSRYB104K16
	C 407	(A,84,106)	CKSRYB105K10
	C 408	(A,82,106)	CKSRYB105K10
	C 409	(A,80,106)	CKSRYB105K10
	C 410	(A,79,106)	CKSRYB105K10
	C 411	(A,115,113)	CKSRYB105K10
	C 412	(A,114,118)	CKSRYB105K10

Mark	No.	Description	Part No.
	C 413	(B,92,115)	CKSRYB104K16
	C 414	(A,107,112)	CKSRYF104Z25
	C 415	(A,109,112)	CKSRYF104Z25
	C 418	(A,112,120)	CKSRYF105Z10
	C 419	(A,112,122)	CKSRYB105K10
	C 420	(A,112,124)	CKSRYB105K10
	C 421	(A,113,126)	CKSRYB105K10
	C 422	(A,113,128)	CKSRYB105K10
	C 423	(A,113,130)	CKSRYB105K10
	C 424	(A,113,132)	CKSRYB105K10
	C 425	(A,114,134)	CKSRYB105K10
	C 426	(A,105,137)	CKSRYB104K16
	C 427	(A,108,143)	CKSRYB103K50
	C 428	(A,95,134)	CKSRYB104K16
	C 429	(A,103,138)	CKSRYB105K10
	C 430	(A,101,136)	CKSRYB104K16
	C 431	(A,98,135)	CKSRYB104K16
	C 432	(A,97,140)	CKSRYB105K10
	C 434	(A,89,134)	CKSRYB104K16
	C 435	(A,80,114)	CKSRYF104Z25
	C 436	(A,79,114)	CKSRYF104Z25
	C 437	(A,77,112)	CKSRYF104Z25
	C 438	(A,78,118)	CKSRYF105Z10
	C 439	(B,87,125)	CKSRYB104K16
	C 440	(A,88,137)	CKSRYB104K16
	C 441	(A,81,139)	CKSRYF105Z10
	C 442	(A,81,135)	CKSRYF104Z25
	C 443	(A,100,145)	CKSRYB105K10
	C 444	(A,94,139)	CKSRYB105K10
	C 445	(A,86,146)	CKSRYB105K10
	C 446	(A,92,143)	CKSRYB105K10
	C 447	(A,99,153)	CKSRYB103K50
	C 448	(A,104,147)	CKSRYB103K50
	C 452	(A,104,93)	CEAT101M10
	C 453	(A,92,107)	CEAT101M10
	C 454	(A,73,113)	CEAT101M10
	C 455	(A,121,121)	CEAT4R7M50
	C 456	(A,112,144)	CEAT1R0M50
	C 457	(A,89,141)	CEAT100M50
	C 458	(A,73,138)	CEAT101M10
	C 459	(A,94,96)	CKSRYF105Z10
	C 460	(A,91,96)	CKSRYF105Z10
	C 461	(B,43,142)	CCSRCH471J50
	C 462	(B,41,156)	CCSRCH471J50
	C 463	(B,41,150)	CCSRCH471J50
	C 464	(A,117,95)	CKSRYF104Z25
	C 465	(B,41,162)	CCSRCH471J50
	C 467	(A,87,93)	CKSRYF105Z10
	C 468	(A,111,114)	CKSRYF104Z25
	C 469	(A,110,116)	CKSRYF104Z25
	C 470	(B,34,143)	CCSRCH102J50
	C 471	(A,122,107)	CEAT100M50
	C 472	(A,127,96)	CEAL100M16
	C 473	(A,117,86)	CEAT101M16
	C 474	(A,112,107)	CEAT100M50
	C 475	(A,113,95)	CEAL100M16
	C 476	(B,48,52)	CKSRYB103K50
	C 477	(B,34,157)	CCSRCH102J50
	C 478	(A,58,68) ELECT. CAPACITOR	CEAT102M6R3

Mark	No.	Description	Part No.
C	482	(B,33,75)	CCSRCH471J50
C	483	(A,60,48) ELECT. CAPACITOR	CEAT102M6R3
C	484	(B,34,85)	CCSRCH471J50
C	485	(B,46,57)	CKSRYB103K50
C	486	(A,60,57) ELECT. CAPACITOR	CEAT102M6R3
C	487	(A,49,91) ELECT. CAPACITOR	CEAT102M6R3
C	488	(A,56,78) ELECT. CAPACITOR	CEAT471M6R3
C	489	(A,49,73) ELECT. CAPACITOR	CEAT471M6R3
C	490	(A,48,62) ELECT. CAPACITOR	CEAT102M6R3
C	491	(A,57,85)	CEAT470M16
C	492	(A,99,81)	CEAT221M6R3
C	493	(B,41,83)	CCSRCH471J50
C	495	(A,57,96)	CEAT470M16
C	496	(A,89,135)	CKSRYF104Z25
C	497	(B,41,96)	CCSRCH471J50
C	498	(B,34,148)	CCSRCH102J50
C	499	(B,34,162)	CCSRCH102J50
C	602	(B,28,172)	CKSRYB222K50
C	603	(B,51,174)	CKSRYB222K50
C	604	(B,61,174)	CCSRCH101J50
C	605	(B,43,174)	CCSRCH100D50
C	606	(B,47,174)	CCSRCH100D50
C	607	(A,74,165)	CEAT1R0M50
C	609	(A,62,167)	CEAT101M10
C	611	(A,55,169)	CEAT220M25
C	613	(B,136,167)	CKSRYF105Z10
C	614	(B,80,176)	CKSRYF104Z25
C	615	(B,88,179)	CCSRCH101J50
C	616	(B,80,178)	CKSRYB103K50
C	617	(A,114,183)	CKSRYF104Z25
C	618	(A,122,183)	CKSRYF104Z25
C	619	(A,127,179)	CKSRYF104Z25
C	620	(A,109,180)	CKSRYF105Z10
C	621	(B,88,183)	CCSRCH560J50
C	622	(A,109,177)	CCSRCH560J50
C	623	(B,97,178)	CCSRCH5R0C50
C	624	(B,97,172)	CCSRCH5R0C50
C	625	(B,121,171)	CKSRYF105Z10
C	626	(B,139,182)	CKSRYF104Z25
C	627	(B,141,182)	CCSRCH102J50
C	628	(A,134,174)	CKSRYB103K50
C	629	(A,127,175)	CKSRYB392K50
C	630	(A,141,176)	CCSRCH561J50
C	631	(A,137,167)	CKSRYB103K50
C	632	(A,127,171)	CKSRYB392K50
C	633	(A,139,171)	CCSRCH561J50
C	635	(A,112,162)	CCSRCH220J50
C	636	(A,114,164)	CCSRCH220J50
C	638	(A,114,188)	CEAT100M50
C	639	(A,120,188)	CEAT3R3M50
C	640	(A,82,175)	CEAT101M10
C	641	(A,132,178)	CEAT100M50
C	642	(A,143,180)	CEAT101M10
C	643	(A,127,168)	CEAT101M10
C	701	(B,39,35)	CKSRYF105Z10
C	702	(B,29,29)	CCSRCH681J50
C	703	(B,24,31)	CKSRYF104Z25

D F SERVICE MAIN ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
IC	201		K4S641632K-UC60
IC	501		BD7956FS
IC	1001		MC-10050F1-507LU1A
IC	1102		VYW2410
IC	1201,1221		EDD5116AFTA-6B-E
IC	1301,1302		NJM12904V
IC	3101		AK5359ET
IC	3201		PCM1742KE
IC	3202		UPC4570G2-A
IC	3701		TC7WH34FU
IC	3702,5203		TC7SH08FUS1
IC	3707		PST3813U
IC	4501,4502		CEK1285
IC	4511		S-1170B33UC-OTS
IC	4521		S-1170B25UC-OTK
IC	4531		MM1701WH
IC	4541		MM1563DF
IC	4552		S-1170B50UC-OUJ
IC	4561		S-1112B50MC-L7J
IC	4562		S-1112B33MC-L6S
IC	4571		S-1132B18-U5
IC	5103		UPD72852AGB-8EU-A
IC	5151		TC7MBL3257AFK
IC	5202		R5523N001B
IC	5204		R1173H001B
IC	5602		88SA8040B1-TBC1
IC	5801		SII9002CSU
IC	5803		TC7WPB306FK
IC	5804		TC7WB125FK
Q	102		RT1N141U
Q	1801,1811,2501-2505		2SA1576A
Q	3301,3303,3305,3307		2SA1576A
Q	3302,3304,3306,3308		2SC4081
Q	4581,5701		2SC4081
Q	5801		HN1C01FU
Q	5802		UMB1N
Q	5804		DTC124EUA
Q	5805		2SA1576A
Q	5808		2SK2034
Q	5810		UMF21N
D	3201		DAN202U
D	4521,4552,4571		RB501V-40

MISCELLANEOUS

Mark	No.	Description	Part No.
L	105	CHIP COIL	BTH1103
L	1001-1004,1021-1025	EMI FILTER	DTL1106
L	1005	INDUCTOR	LCTC150K2125
L	1801	CHIP COIL	LCYA390J2520
L	1811	INDUCTOR	LCYA150J2520
L	1821,1831,5122,5601	EMI FILTER	DTL1106
L	3301,3303,3305,3307	CHIP COIL	LCYA180J2520
L	3302,3304,3306,3308	INDUCTOR	LCYA100J2520
L	5101	INDUCTOR	CTF1305
L	5201,5202	COIL	ATH7015
L	5701	INDUCTOR	CTF1382
L	5801-5804	EMI FILTER	ATF1209
L	5805	EMI FILTER	DTL1106
JA	5701	JACK	VKB1159
JA	5801	HDMI CONNECTOR	AKP1318

Mark	No.	Description	Part No.
X	101	CERAMIC RESONATOR (16.934 MHZ)	DSS1157
X	1001	CRYSTAL RESONATOR (24.576 MHZ)	VSS1220
X	1002	CRYSTAL RESONATOR (27 MHZ)	VSS1172
X	5101	CRYSTAL (24.576 MHZ)	VSS1211
X	5201	CRYSTAL (48 MHZ)	VSS1218
X	5502	CRYSTAL (25 MHZ)	VSS1214
CN	101	CONNECTOR	DKN1404
CN	201	CONNECTOR	VKN2029
CN	501	CONNECTOR	DKN1312
CN	502	4P CONNECTOR	DKN1288
CN	601	5P CONNECTOR	DKN1402
CN	1401	CONNECTOR	VKN2030
CN	1402	07P CONNECTOR	RKN1048
CN	2301	40P CONNECTOR	VKN2065
CN	3801	CONNECTOR	CKS5321
CN	4501	KR CONNECTOR	S13B-PH-K-S
CN	5101	CONNECTOR	VKN1932
CN	5201	CONNECTOR	VKN1936
CN	5604	SATA PLUG HEADER	VKN2077
		HEATSINK(AL)	VNH1079
		SCREW	BBZ30P060FTC
		RADIATION SHEET	VEB1360

RESISTORS

Mark	No.	Description	Part No.
R	174		RS1/16S4701F
R	204-206,317-320		RAB4CQ330J
R	219,220		RAB4CQ472J
R	271,273,274,3230		RS1/10S0R0J
R	501		DCN1171
R	502		DCN1172
R	510,511		RS1/10S1R8J
R	1003		RS1/16S6800F
R	1004,1301,3306,3312		RS1/16S4700F
R	1032-1035,1411,3005		RAB4CQ103J
R	1036,1039		RS1/16S43R0D
R	1037,1040		RS1/16S1000F
R	1241,1242,1248,1249		RAB4CQ0R0J
R	1245,1246,1255,1256		RAB4CQ220J
R	1261,1262,1268,1269		RAB4CQ0R0J
R	1265,1266,1273,1274		RAB4CQ220J
R	1281-1283,1287		RAB4CQ470J
R	1302,1303,1312,1313		RS1/16S1001F
R	1314,2506,4574,4575		RS1/16S0R0J
R	2502,2505,2508,2511		RS1/16S1500F
R	2514		RS1/16S1500F
R	3210,3216		RN1/16SE1201D
R	3211,3217		RN1/16SE1002D
R	3218,3223		RN1/16SE2202D
R	3307,3313,3324,3325		RS1/16SS5601F
R	3318,3323		RS1/16S4700F
R	3810-3813,3837-3840		RAB4CQ330J
R	3824		RAB4CQ820J
R	3828-3833		RAB4CQ223J
R	3851,5632,5638,5642		RAB4CQ330J
R	4501,4551-4554,4556		RS1/10S0R0J
R	4504,4505,4507		RS1/10S272J
R	4716,4717		RAB4CQ103J
R	4721,4722		RAB4CQ101J
R	5101,5102		RAB4CQ104J
R	5105,5106		RAB4CQ680J
R	5118		RN1/16SE9101D
R	5119-5122		RS1/16S56R0D
R	5131		RN1/16SE5101D
R	5203		RS1/16S3301F
R	5204		RS1/16S8200F
R	5220		RS1/16S1501F
R	5445,5819,5820		RS1/10S0R0J
R	5646		RAB4CQ330J
R	5651		RS1/16S1202F
R	5664,5672,5705,5830		RS1/16S0R0J
R	5706		RS1/16S75R0F
R	5825-5828		RAB4CQ220J
R	5855		RAB4CQ100J
Other Resistors			RS1/16SS###J

CAPACITORS

Mark	No.	Description	Part No.
C	100,101,105,117		CKSSYB102K50
C	103,1009		VCH1234
C	104,154,162,1004		VCG1057
C	106,159,167,288		CKSSYF104Z16
C	107		CKSSYB681K50
C	113,114		CKSSYB472K25
C	115,135,144,145		CKSSYB103K16
C	116,120,124,128		CKSSYB104K10
C	121,122		CKSSYB222K50
C	125,129,280-285		VCG1058
C	127,1805,1815		CKSSYB473K10
C	130,181,194,4511		CKSQYB475K6R3
C	131		CKSSYB683K10
C	133,134,136,169		CKSSYB104K10
C	137		CKSSYB682K25
C	140,141,155		DCH1199
C	142,143,146,180		DCH1201
C	147,148		DCH1198
C	149,157,158,187		CKSSYB103K16
C	152,164,189,289		CKSSYB102K50
C	153,1020,4516		CEVW100M16
C	156		CKSSYB182K50
C	163,1007,3108,3219		CEVW221M4
C	165,166,176,177		CCSSCH220J50
C	170,172-174		CCSSCH470J50
C	171,197,504,516		CKSSYB104K10
C	182,286,1021,1051		DCH1201
C	188,1058,1205,1206		CKSSYB103K16
C	287,2305,4522,4531		VCG1058
C	290,501,1057,1060		CKSSYF104Z16
C	291,508,1005,1011		CKSSYB102K50
C	502		DCH1263
C	503		CKSRYB471K50
C	505,514,515		CKSRYB104K25
C	509		CCSSCH330J50
C	510,3304,3317,3323		CCSSCH680J50
C	511		CKSQYB105K16
C	512,513,803,832		CKSRYF104Z16
C	532,1001,1002		CKSSYB104K10
C	824		CKSQYF104Z25
C	1003,1024,1036,1039		CEVW101M4
C	1006,1008,1010,1013		VCG1057
C	1012,1215,1236		VCH1268
C	1014,1023,1026,1038		CKSSYB102K50

Mark	No. Description	Part No.
C	1015-1019,1027-1035	CKSSYB104K10
C	1022,1025,1037,1040	VCG1057
C	1041,1049,1053,1061	CKSSYB102K50
C	1042,1043	CCSSCJ3R0C50
C	1044,1045,3303,3316	CCSSCH5R0C50
C	1047	CKSSYB104K10
C	1048,1052,1056,1059	VCG1057
C	1050,5121,5122,5613	CEVW101M4
C	1062,1066,1102,1104	VCG1057
C	1063,1067,1105,1203	CKSSYF104Z16
C	1064,1065,1068,1101	CKSSYB102K50
C	1103,1207,1209,1210	CKSSYB102K50
C	1113,1202,1204,1208	VCG1057
C	1211-1214,1222,1230	CKSSYF104Z16
C	1216-1221,1223,1227	VCG1057
C	1224,1225,1401,3701	CKSSYB103K16
C	1226,1228,1229,3106	CKSSYB102K50
C	1231,1235,1316,2506	DCH1201
C	1291,1302,1303,1312	CKSSYF104Z16
C	1301,1315,1802,1812	CKSQYB225K10
C	1304,3207,4515	CEVW470M6R3
C	1313,3105,3202,3206	CKSSYF104Z16
C	1421,1801,1811	VCG1057
C	1803	CCSSCH221J50
C	1804,3204	CKSSYB331K50
C	1813	CCSSCH101J50
C	1814	CCSSCH151J50
C	2501-2505,3104,3107	VCG1057
C	3103,3211,3218,4507	CEVW101M16
C	3201	CEAT102M6R3
C	3203,3705,3706	CKSSYB102K50
C	3212,3217,4504,4506	CKSSYF104Z16
C	3213,3214	CKSSYB561K50
C	3215,3216	CCSSCH820J50
C	3220,3332-3335	VCG1057
C	3301,3302,3311,3312	CCSRCH7R0D50
C	3305,3318,3324,3331	CCSSCH150J50
C	3307,3313,3319,3325	CKSRYB105K10
C	3314,3315,3320,3321	CCSRCH7R0D50
C	3322,3329	CCSSCH5R0C50
C	3330	CCSSCH680J50
C	3339-3342,3703,3707	VCG1057
C	3704,4534,5151	DCH1201
C	3738,3803,3804	VCG1057
C	4501-4503,4505	VCG1057
C	4508,4509,4572,5809	CEVW221M4
C	4513,4524,4525,4555	CKSQYB475K6R3
C	4532,4557,5604-5611	CKSSYB103K16
C	4533,4541,4562,4563	VCG1058
C	4535-4537,4539,4540	CKSSYB102K50
C	4542,5212	CKSQYB225K10
C	4543,5154,5211,5216	CKSSYB102K50
C	4556,4571,4573	CKSQYB475K6R3
C	4558,4559,4581,4586	CEVW101M16
C	4567,4570,5217	VCG1058
C	4585,5104,5109,5113	CKSSYF104Z16
C	5105-5108,5110-5112	VCG1057
C	5114,5153,5209,5222	CKSSYF104Z16
C	5115,5116,5120,5123	VCG1057

Mark	No. Description	Part No.
C	5117,5118,5640,5641	CCSSCH120J50
C	5119	CKSSYB271K50
C	5132,5133,5152,5205	VCG1057
C	5210	CEVW101M16
C	5213,5601,5602,5702	VCG1057
C	5218,5219,5223,5706	CKSSYB102K50
C	5603,5612,5615,5616	CKSSYF104Z16
C	5614,5617,5622-5632	CKSSYB103K16
C	5704	CEVW1R0M50
C	5801,5803,5805-5808	VCG1057
C	5802,5804,5819	CKSSYB102K50
C	5812,5813	CKSSYF104Z16
C	5814	CKSRYF104Z16
C	5815-5818	CKSRYB104K25
C	5820,5824,5826	VCG1057
C	5821-5823,5825	CKSSYB102K50

3. SERVICE MODE

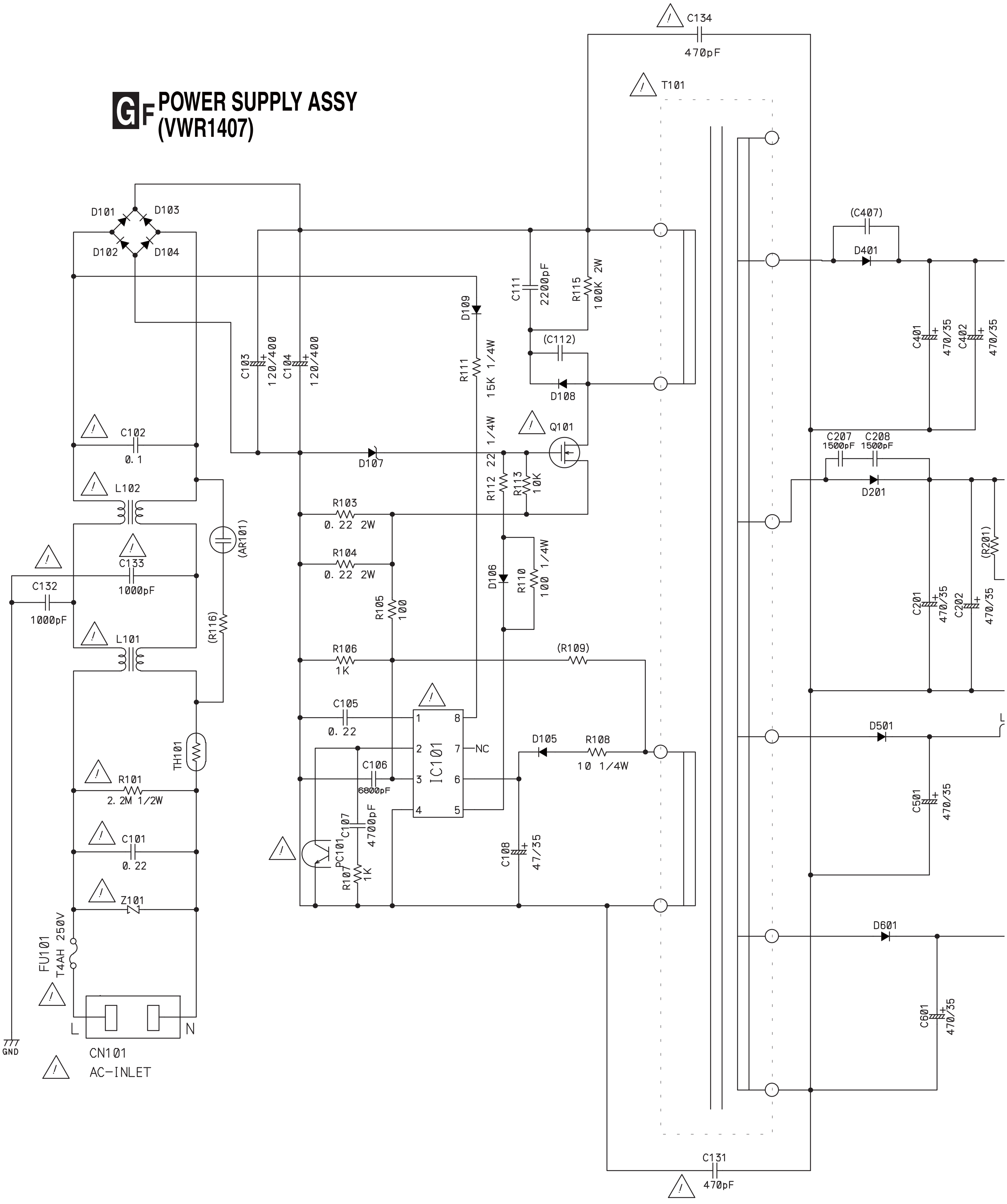
SERVICE MODE for TFXV and TAXV5 types are the same as KCXV type except for the following:

◆ Service Mode Map

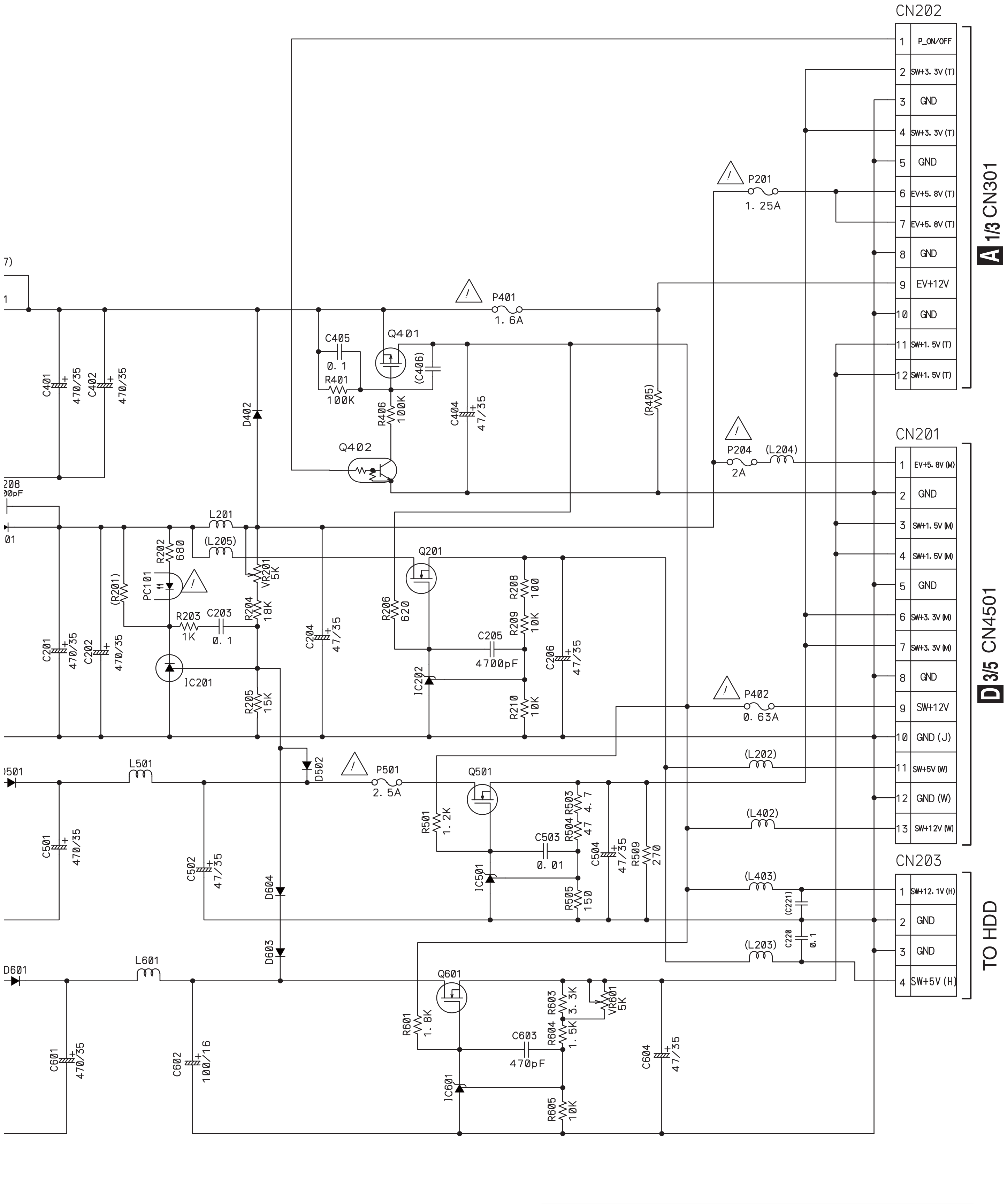
Category	Mode	Procedure	Necessary When
Adjustment	Model Setting	Automatically start up when necessary	After replacing M/B or T/B
Adjustment	LD Power Adjustment	[ESC] + [CX] + [1] + [0]	After replacing M/B or Loader
Adjustment	CPRM ID Number/Data Setting	[ESC] + [STEREO]	After replacing M/B or HDD
Adjustment	Firmware Update	[REC STOP] + [OPEN/CLOSE]	After replacing M/B or T/B
Adjustment	Gracenote Database Update	This mode does not correspond.	
Adjustment	Video Adjustment for Specific Area	[ESC] + [CHP/TIM]	As needed
Adjustment	OSD Filter Setting	[ESC] + [DISP] + [DIG/ANA] x4	As needed
Diagnosis	Version Info, etc.	[ESC] + [DISP]	
Diagnosis	RF Level	[ESC] + [DISP] + [DIG/ANA]	
Diagnosis	Error Rate	[ESC] + [DISP] + [DIG/ANA] x2	
Diagnosis	HDD Info	[ESC] + [DISP] + [DIG/ANA] x3	
Diagnosis	Writer Maintenance Info	[ESC] + [DISP] + [2] + [DIG/ANA] x2 + [SEARCH]	
Diagnosis	LD Degradation Check	[ESC] + [DISP] + [2] + [DIG/ANA] x3 + [SEARCH]	
Diagnosis	DV Info	[ESC] + [DISP] + [3]	
Diagnosis	VR Recording Error Log	[ESC] + [DISP] + [4] + [DIG/ANA] x3	
Diagnosis	VR Playback Error Log	[ESC] + [DISP] + [5] + [DIG/ANA]	
Diagnosis	EPG Info	[ESC] + [DISP] + [7]	Europe model only
Diagnosis	AAC Info	This mode does not correspond.	
Diagnosis	HDMI Info	[ESC] + [DISP] + [+10] x2 + [4]	
Diagnosis	Ethernet Info	This mode does not correspond.	
Diagnosis	HDD Check	[ESC] + [CX] + [0] + [1]	
Diagnosis	USB Check	[ESC] + <TIMER/REC>	
Diagnosis	DVD Aging Mode	<DVD> + [ESC] + [REP.B] + [PLAY]	
Diagnosis	HDD Aging Mode	<HDD> + [ESC] + [REP.B] + [PLAY]	

4. SCHEMATIC DIAGRAM

4.1 POWER SUPPLY ASSY



G F POWER SUPPLY ASSY
(VWR1407)
C134
470pF
T101
D101
D103
D102
D104
C111
2200pF
R115
100K 2W
(C407)
D401
D109
(C112)
C401
470/35
C402
470/35
C103
120/400
C104
120/400
R111
15K 1/4W
D108
C102
0.1
Q101
D107
R112 22 1/4W
R113
10K
C207
1500pF
C208
1500pF
D201
L102
R103
0.22 2W
(AR101)
C133
1000pF
R104
0.22 2W
(R201)
C132
1000pF
D106
R110
100 1/4W
R105
100
C201
470/35
C202
470/35
L101
(R116)
R106
1K
(R109)
C105
0.22
IC101
NC
D501
TH101
D105
R108
10 1/4W
C106
6800pF
R101
2.2M 1/2W
C501
470/35
C101
0.22
PC101
C107
4700pF
R107
1K
C108
47/35
Z101
D601
FU101
T4AH 250V
C601
470/35
L
N
GND
CN101
AC-INLET
C131
470pF
A
B
C
D
E
F


CN202
1 P_ON/OFF
2 SW+3.3V (T)
3 GND
4 SW+3.3V (T)
5 GND
6 EV+5.8V (T)
7 EV+5.8V (T)
8 GND
9 EV+12V
10 GND
11 SW+1.5V (T)
12 SW+1.5V (T)
A 1/3 CN301
P201 1.25A
P401 1.6A
C405 0.1
R401 100K
Q401
(C406)
C401 470/35
C402 470/35
D402
R406 100K
C404 47/35
(R405)
Q402
CN201
1 EV+5.8V (M)
2 GND
3 SW+1.5V (M)
4 SW+1.5V (M)
5 GND
6 SW+3.3V (M)
7 SW+3.3V (M)
8 GND
9 SW+12V
10 GND (J)
11 SW+5V (W)
12 GND (W)
13 SW+12V (W)
D 3/5 CN4501
P204 2A
(L204)
208
00pF
L201
(L205)
R202 680
(R201)
PC101
VR201 5K
R204 18K
R203 1K
C203 0.1
IC201
R205 15K
C201 470/35
C202 470/35
C204 47/35
Q201
R206 620
R208 100
R209 10K
C205 4700pF
C206 47/35
IC202
R210 10K
P402 0.63A
(L202)
(L402)
501
L501
D502
P501 2.5A
Q501
R501 1.2K
R503 4.7
R504 47
C503 0.01
C504 47/35
R509 270
IC501
R505 150
C501 470/35
C502 47/35
D604
D603
CN203
1 SW+12.1V (H)
2 GND
3 GND
4 SW+5V (H)
TO HDD
(L403)
(L203)
(C221)
C220 0.1
D601
L601
Q601
R601 1.8K
R603 3.3K
R604 1.5K
VR601 5K
C603 470pF
C604 47/35
IC601
R605 10K
C601 470/35
C602 100/16

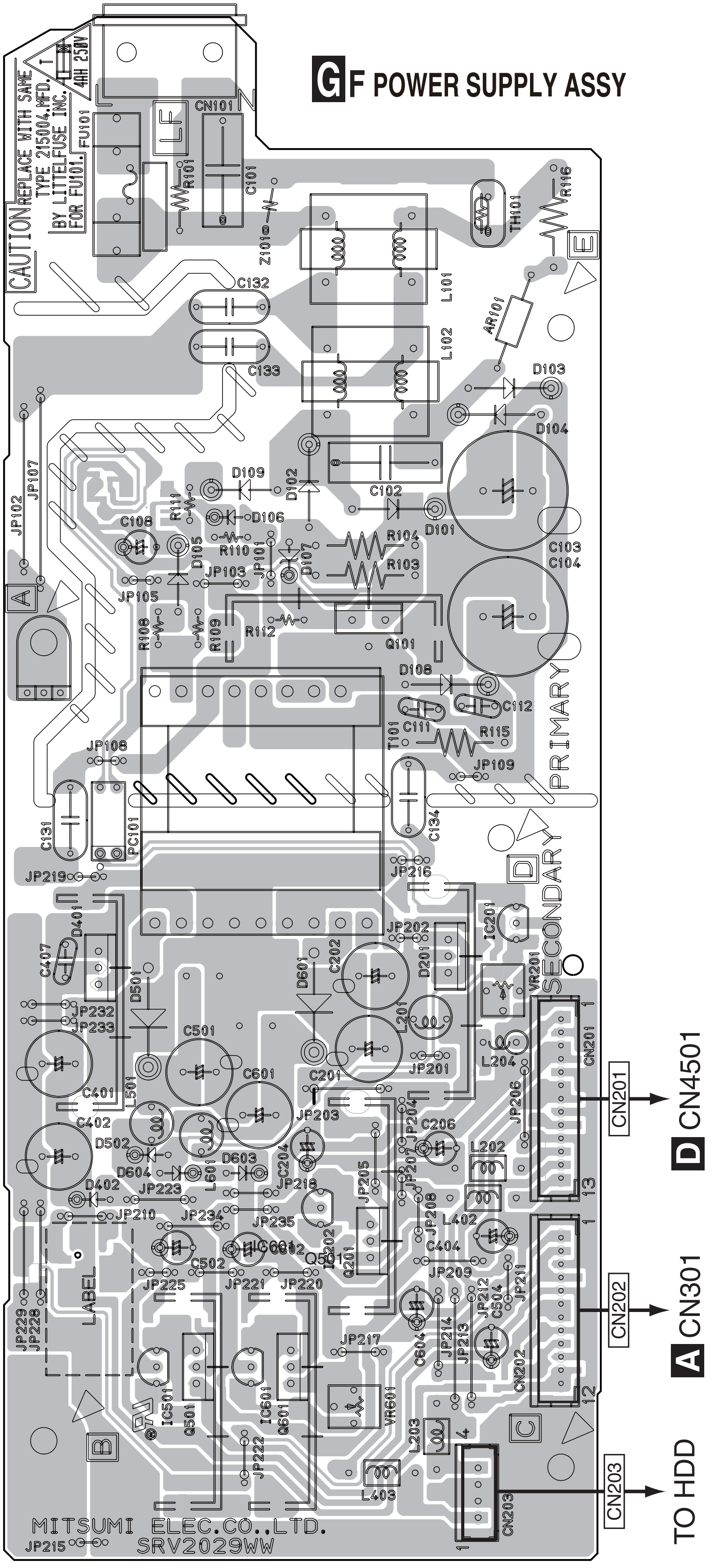
Unit	Resistor	Ω/W (under 1/4W for no direction W)
	Capacitor	µF/V (under 50V for no direction V)

5. PCB CONNECTION DIAGRAM

5.1 POWER SUPPLY ASSY

SIDE A

IC	Q
	Q101
IC201	
IC202	Q201
IC501 IC601	Q501 Q601



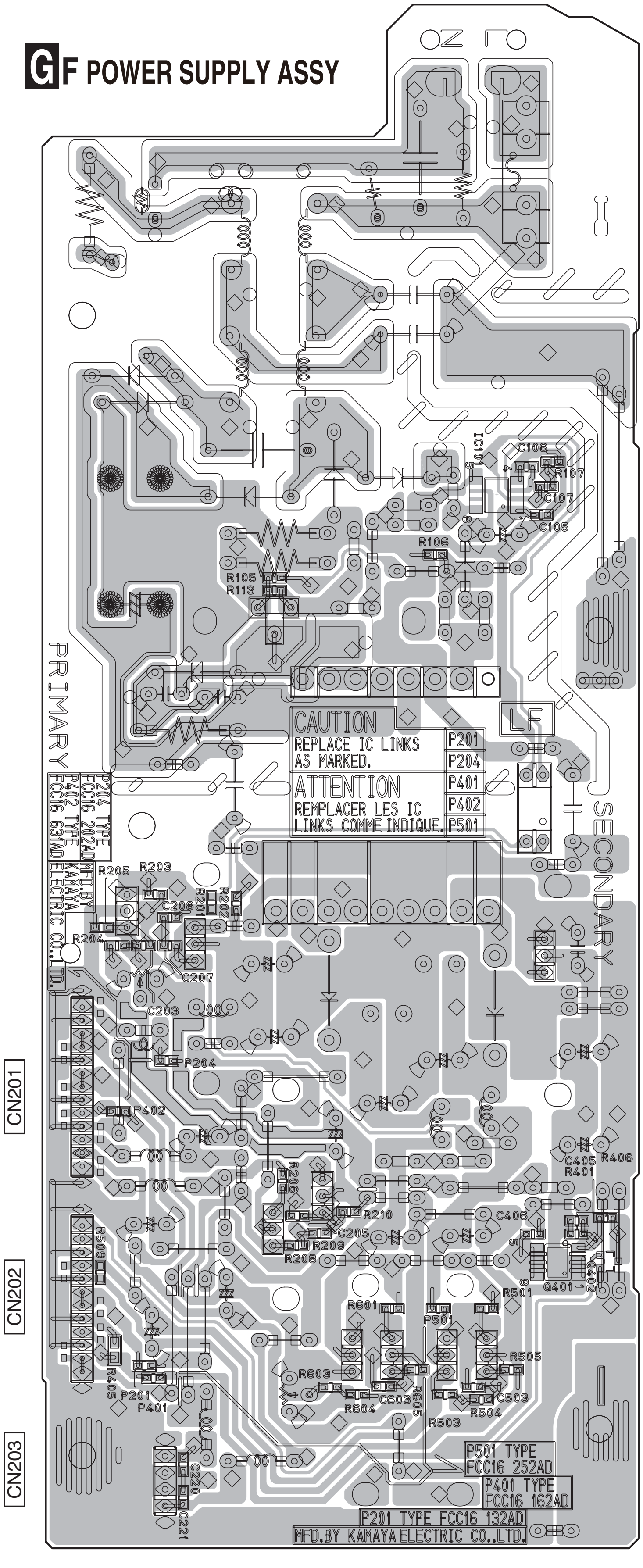
GF POWER SUPPLY ASSY
CAUTION REPLACE WITH SAME TYPE 215004.MFD. BY LITTELFUSE INC. FOR FU101.
T 4AH 250V
FU101
CN101
LF
R101
C101
Z101
TH101
R116
E
C132
C133
L101
L102
AR101
D103
D104
JP102
JP107
D109
D102
C102
R111
D106
C108
D105
R110
JP101
D107
R104
R103
D101
C103
C104
A
JP103
JP105
R108
R109
R112
Q101
D108
C112
C111
R115
T101
PRIMARY
JP108
JP109
C131
PC101
C134
JP219
JP216
D
SECONDARY
C407
D401
D501
D601
C202
JP202
D201
IC201
VR201
JP232
JP233
C501
L201
C601
C201
JP201
L204
C401
L501
JP203
JP206
CN201
1
13
C402
D502
C206
L202
D604
D603
C204
D402
JP223
L601
JP218
JP205
JP207
JP204
JP210
JP234
JP208
L402
JP235
IC602
Q501
IC202
Q201
C404
C502
JP225
JP221
JP220
JP209
JP212
JP211
C504
JP229
JP228
LABEL
JP214
JP213
CN202
12
JP217
C604
B
IC501
Q501
IC601
Q601
VR601
C
L203
4
JP222
L403
CN203
MITSUMI ELEC.CO.,LTD.
SRV2029WW
JP215
CN201
D CN4501
CN202
A CN301
CN203
TO HDD

GF **GF**

SIDE B **SIDE B**

IC	Q
IC101	
	Q402
	Q401

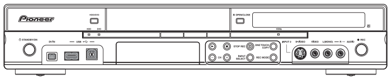
GF POWER SUPPLY ASSY


PRIMARY
SECONDARY
LF
CAUTION
REPLACE IC LINKS
AS MARKED.
ATTENTION
REMPLACER LES IC
LINKS COMME INDIQUE.
P201
P204
P401
P402
P501
P204 TYPE
FCC16 202AD
P402 TYPE
FCC16 631AD
MFD.BY KAMAYA
ELECTRIC CO.,LTD.
IC101
C106
R107
C107
C105
R106
R105
R113
R205
R203
R201
R202
C208
R204
C207
C203
P204
P402
R206
R210
C205
R209
R208
R509
C406
C405
R406
R401
Q401
Q402
R501
R601
P501
R505
R603
R605
C603
R604
R503
C503
R504
R405
P201
P401
C220
C221
CN201
CN202
CN203
P501 TYPE
FCC16 252AD
P401 TYPE
FCC16 162AD
P201 TYPE FCC16 132AD
MFD.BY KAMAYA ELECTRIC CO.,LTD.

GF **GF**

Pioneer sound.vision.soul

Service Manual



DVR-660H-K

ORDER NO.
RRV3751

HDD/DVD RECORDER

DVR-660H-K
DVR-560H-K
DVR-460H-K

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	**Serial No.** Please Confirm 3rd & 4th alphabetical letters.
DVR-660H-K	KCXV	AC 120 V	1	&&DL######$$
DVR-560H-K	KCXV	AC 120 V	1	&&DL######$$
DVR-460H-K	KCXV	AC 120 V	1	&&DL######$$

For details, refer to "Important Check Points for good servicing".

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

©PIONEER CORPORATION 2008

T-ZZA-001 APR. 2008 Printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

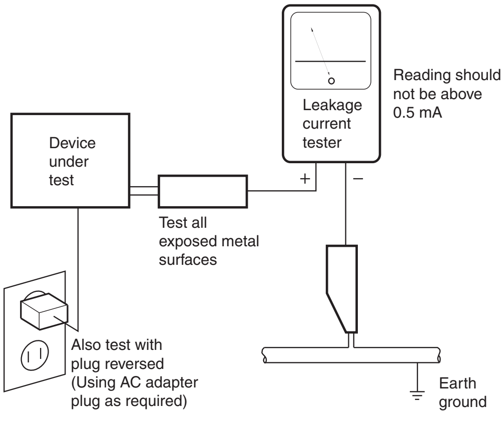
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Reading should not be above 0.5 mA
Leakage current tester
Device under test
+
−
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

■ LABEL CHECK

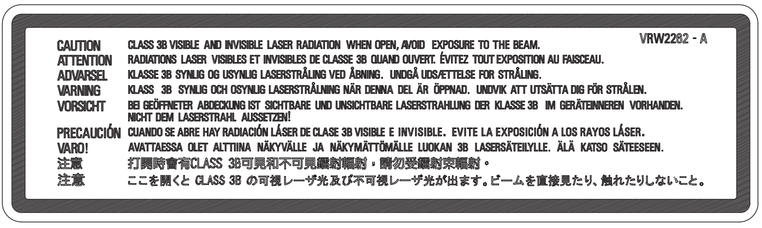
WARNING!

The laser component is capable of emitting radiation exceeding the limit for CLASS 1. A specially instructed person should do servicing operation of the apparatus.

Laser Pickup specifications and Laser characteristics

For CD
Wave length : 785 nm
Operating output :
Read mode : 1.07 mW (CW), Class1
Maximum output : Class1M

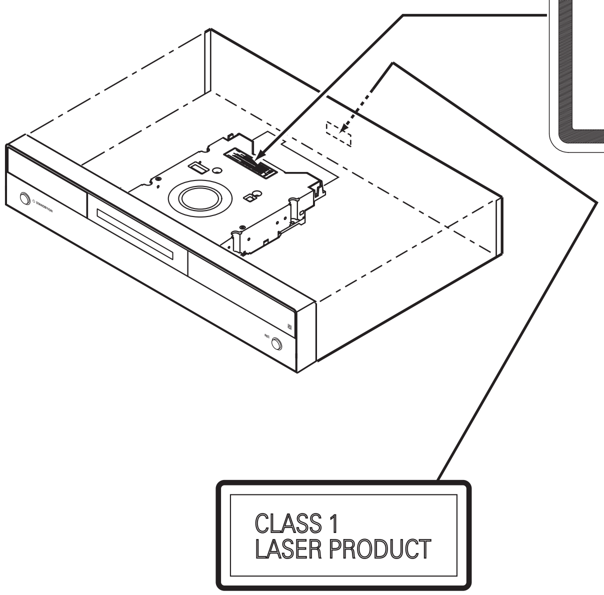
For DVD
Wave length : 660 nm
Operating output :
Read mode : 1.08 mW, Class1
Write mode : 21.89 mW (Pulse), Class1M
Maximum output : Class2M



VRW2262 - A

CAUTION	CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.
ATTENTION	RADIATIONS LASER VISIBLES ET INVISIBLES DE CLASSE 3B QUAND OUVERT. ÉVITEZ TOUT EXPOSITION AU FAISCEAU.
ADVARSEL	KLASSE 3B SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING	KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT UTSÄTTA DIG FÖR STRÅLEN.
VORSICHT	BEI GEÖFFNETER ABDECKUNG IST SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG DER KLASSE 3B IM GERÄTEINNEREN VORHANDEN. NICHT DEM LASERSTRAHL AUSSETZEN!
PRECAUCIÓN	CUANDO SE ABRE HAY RADIACIÓN LÁSER DE CLASE 3B VISIBLE E INVISIBLE. EVITE LA EXPOSICIÓN A LOS RAYOS LÁSER.
VARO!	AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LUOKAN 3B LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
注意	打開時會有CLASS 3B可見和不可見鐳射輻射，請勿受鐳射束輻射。
注意	ここを開くと CLASS 3B の可視レーザ光及び不可視レーザ光が出ます。ビームを直接見たり、触れたりしないこと。

VRW2262



CLASS 1
LASER PRODUCT

Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the "LD Degration Judgment of ATA/ATAPI DEBUG OSD" and "LD POWER ADJUSTMENT"*.

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

* Refer to Pages 47 and 80.

LITHIUM BATTERY NOTICE

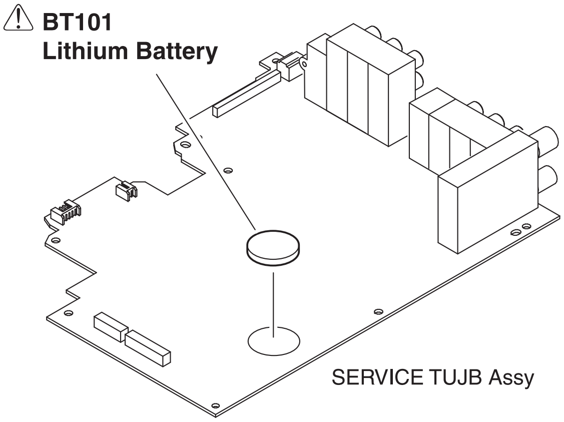
CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

When replacing the lithium batteries, follow the note below. Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.
The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note : The lithium battery installation position is shown in the exploded views.

Exploded Views



[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

SAFETY INFORMATION 2

1. SERVICE PRECAUTIONS 7
   - 1.1 NOTES ON SOLDERING 7
   - 1.2 NOTES ON HANDLING THE HDD 8
   - 1.3 NOTES ON REPLACEMENT OF THE SDRAM 10
2. SPECIFICATIONS 11
   - 2.1 ACCESSORIES 11
   - 2.2 SPECIFICATIONS 12
   - 2.3 DISC/CONTENT FORMAT 15
   - 2.4 PANEL FACILITIES 20
3. BASIC ITEMS FOR SERVICE 25
   - 3.1 CHECK POINTS AFTER SERVICING 25
   - 3.2 QUICK REFERENCE 27
   - 3.3 PCB LOCATIONS 28
   - 3.4 JIGS LIST 29
4. BLOCK DIAGRAM 30
   - 4.1 OVERALL WIRING DIAGRAM 30
   - 4.2 OVERALL BLOCK DIAGRAM 32
   - 4.3 POWER BLOCK DIAGRAM 34
5. DIAGNOSIS 35
   - 5.1 SETUP SEQUENCE 35
   - 5.2 DIAGNOSIS OF THE MAIN ASSY 36
6. SERVICE MODE 40
   - 6.1 VERSION INFORMATION, ETC. (FIRST SCREEN) 41
   - 6.2 ATA/ATAPI DEBUG SCREEN (SECOND SCREEN) 46
   - 6.3 VR-RECORDING-RELATED ERROR LOGS (FOURTH SCREEN) 48
   - 6.4 VR-PLAYBACK-RELATED ERROR LOGS (FIFTH SCREEN) 53
   - 6.5 DV SERVICE MODE 56
   - 6.6 HDMI SERVICE MODE 59
   - 6.7 AGING MODE 61
   - 6.8 USB CHECK MODE 63
   - 6.9 HDD CHECK MODE 64
   - 6.10 DIAGNOSTIC PROCEDURES WHEN AAC DECODING HAS FAILED 70
   - 6.11 DIAGNOSTIC PROCEDURES WHEN CONNECTING THE LAN 73
7. DISASSEMBLY 74
8. EACH SETTING AND ADJUSTMENT 79
   - 8.1 MODEL SETTING 79
   - 8.2 LD POWER ADJUSTMENT 80
   - 8.3 CPRM ID NUMBER AND DATA SETTING 84
   - 8.4 FIRMWARE UPDATE METHOD 88
   - 8.5 GRACENOTE DATABASE UPDATE METHOD (DVR-660H-K, 560-K ONLY) 91
   - 8.6 VIDEO ADJUSTMENT FOR SPECIFIC AREA 93
9. EXPLODED VIEWS AND PARTS LIST 98
   - 9.1 PACKING SECTION 98
   - 9.2 EXTERIOR SECTION 100
   - 9.3 FRONT PANEL SECTION 102
   - 9.4 SERVICE LOADER MAIN SECTION 104

10. SCHEMATIC DIAGRAM 106
  10.1 SERVICE TUJB ASSY (1/3) 106
  10.2 SERVICE TUJB ASSY (2/3) 108
  10.3 SERVICE TUJB ASSY (3/3) 110
  10.4 SERVICE FLKY ASSY 112
  10.5 SERVICE MAIN ASSY (1/5) 114
  10.6 SERVICE MAIN ASSY (2/5) 116
  10.7 SERVICE MAIN ASSY (3/5) 118
  10.8 SERVICE MAIN ASSY (4/5) 120
  10.9 SERVICE MAIN ASSY (5/5) 122
  10.10 ETAB ASSY (DVR-660H-K ONLY) 124
  10.11 SERVICE DVUB ASSY 126
  10.12 POWER SUPPLY ASSY 128
  10.13 WAVEFORMS 130
11. PCB CONNECTION DIAGRAM 135
  11.1 SERVICE FRJB ASSY 135
  11.2 SERVICE TUJB ASSY 136
  11.3 SERVICE FLKY ASSY 140
  11.4 SERVICE MAIN ASSY 142
  11.5 ETAB ASSY (DVR-660H-K ONLY) 146
  11.6 SERVICE DVUB ASSY 147
  11.7 POWER SUPPLY ASSY 148
12. PCB PARTS LIST 150

1. SERVICE PRECAUTIONS

- **When servicing this model, some service procedures may reset the customer settings to the factory default settings. Make sure to explain this to the customer.**
- **An HDD (Hard Disc Drive) is mounted in this product.**
  When an HDD becomes defective and inoperable, restoration of the user's data recorded on the HDD, or copying of the user's recorded data to other media (such as a new HDD) is totally impossible.
  Before servicing, OBTAIN THE USER'S PRIOR CONSENT to that effect.
  The user must be made aware that all recorded data are deleted if the HDD is intialized.

1.1 NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.
  Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.

- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 °C.
  Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 °C in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Do NOT use a soldering iron whose tip temperature cannot be controlled.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:
- Parts numbers of lead-free solder:
  GYP1006 1.0 in dia.
  GYP1007 0.6 in dia.
  GYP1008 0.3 in dia.

1.2 NOTES ON HANDLING THE HDD

[1] Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

	During operation	During noperation
Shock G (acceleration)	<approx. 20 G	<approx. 200 G
Temperature change	< 20ºC/hour	
Moisture change	< 20%/hour	

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

Falling distance \ Landing surface	Granite surface	Concrete floor	Synthetic-resin-coated table	Antistatic sponge
0.5 inch / 12.7 mm	387	217	200	26
1.0 inch / 25.4 mm	595	457	310	37
2.0 inch / 50.8 mm	1133	600	680	70
4.0 inch / 101.6 mm	1795	1040	1050	267

[2] Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

[Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

● **Examples of dangerous handling: while the power is on**

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

● **Examples of dangerous handling: while the power is off**

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
- Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.

- Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit. If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurrs during recording or playback, recorded data may be damaged. Be sure to check operations.

[Cautions on handling the HDD as a repair part]

1. Handle the HDD in a safe environment:
   - Handle the HDD over an antistatic pad that can also absorb shock.
   - Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.

2. The following must be observed when handling the HDD:
   - Handle one HDD at a time. Do NOT hold several HDDs at the same time.
   - Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
   - Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
   - Do NOT bump the HDDs against one another.
   - Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
   - When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

[Notes on packing for shipment]

- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

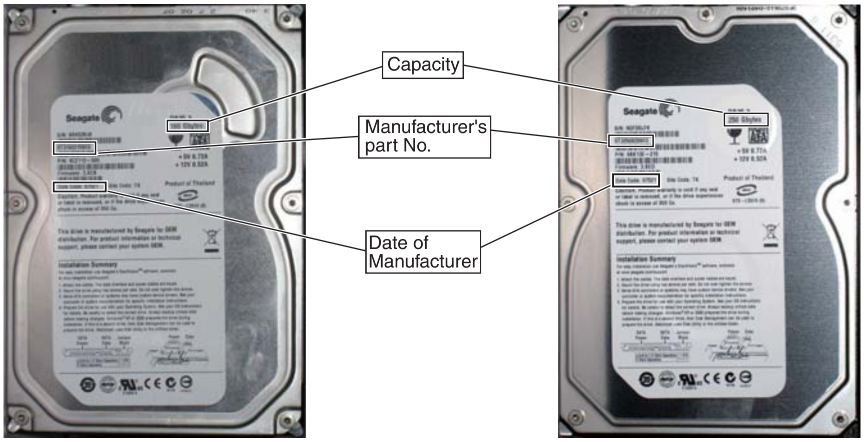
[3]Outline and part No. of the HDDs

Model Name	Capacity	SEAGATE	
		Pioneer's Part No. (for service)	Manufacture's Part No.
DVR-660H-K	250GB	VXF1131	ST3250820SCE
DVR-560H-K DVR-460H-K	160GB	VXF1152	ST3160215SCE

*Pioneer's part No. is not stamped.

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.

Seagate(160GB) Seagate(250GB)



1.3 NOTES ON REPLACEMENT OF THE SDRAM

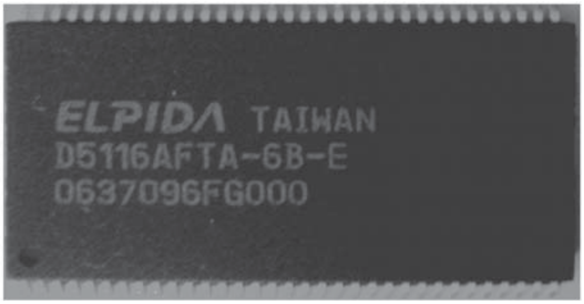
Note when replacing the SDRAM

When replacement of the SDRAM (IC1201 or IC1221) on the MAIN Assy is required, identify the manufacturer of the SDRAM. If the SDRAM that needs replacement was manufactured by ELPIDA, both IC1201 and IC1221 must be replaced at the same time.
SDRAMs for service are manufactured by SAMSUNG.

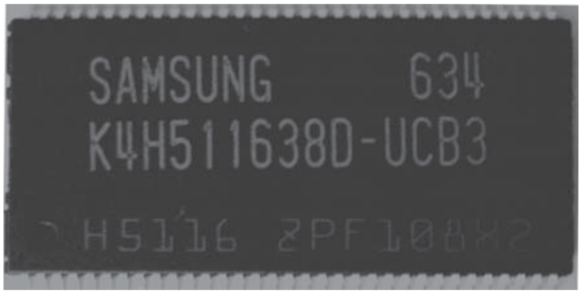
• How to identify the manufacturer

Confirm the name of the manufacturer stamped on the surface of the part.

By ELPIDA (replacement of both SDRAMs required)



By SAMSUNG (replacement of only the defective SDRAM possible)



• Measures to be taken

1. If the SDRAM that needs replacement was manufactured by ELPIDA:
   Replace both IC1201 and IC1221 at the same time.
2. If the SDRAM that needs replacement was manufactured by SAMSUNG:
   Replacement of only the defective SDRAM (IC1201 or IC1221) is possible.

• Possible malfunctions

If SDRAMs made by different manufacturers are mounted on the MAIN Assy, the following malfunctions may occur:

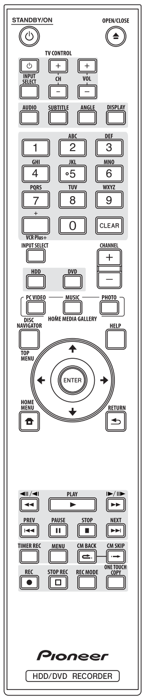
1. The power does not come on.
2. High-speed dubbing disabled
3. Other malfunctions related to the SDRAM

2. SPECIFICATIONS

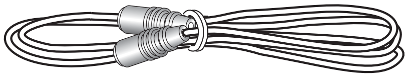
2.1 ACCESSORIES

For DVR-660H-K/KCXV

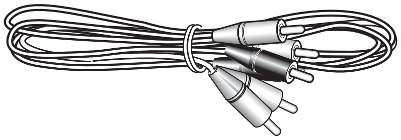
- Remote control ×1
  (VXX3288)


STANDBY/ON
OPEN/CLOSE
TV CONTROL
INPUT SELECT
CH
VOL
AUDIO
SUBTITLE
ANGLE
DISPLAY
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PQRS
TUV
WXYZ
7
8
9
0
CLEAR
VCR Plus+
INPUT SELECT
CHANNEL
HDD
DVD
PC VIDEO
MUSIC
PHOTO
DISC NAVIGATOR
HOME MEDIA GALLERY
HELP
TOP MENU
ENTER
HOME MENU
RETURN
PLAY
PREV
PAUSE
STOP
NEXT
TIMER REC
MENU
CM BACK
CM SKIP
REC
STOP REC
REC MODE
ONE TOUCH COPY
Pioneer
HDD/DVD RECORDER

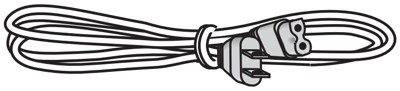
- RF antenna cable ×1
  (VDE1088)



- Audio / Video cable ×1
  (red/white/yellow)
  (VDE1077)

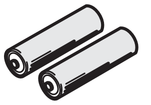


- Power cable ×1
  (ADG7021)



- Operating Instructions (English)(VRB1490)
- Operating Instructions (French)(VRC1461)
- Quick Start Guide (English)(VRG1025)
- Quick Start Guide (French)(VRG1026)
- Warranty Card

- Dry cell batteries ×2
  (AA/R6P)



2.2 SPECIFICATIONS

General

Power requirements	120 V, 60 Hz
Power consumption	
DVR-660H-K	48 W
DVR-560H-K/DVR-460H-K	46 W
Power consumption in standby mode	0.67 W (Front panel display: off)
Weight	
DVR-660H-K	4.4 kg (9 lb. 7 oz.)
DVR-560H-K/DVR-460H-K	4.3 kg (9 lb. 5 oz.)
Dimensions	420 mm (W) x 75 mm (H) x 288 mm (D) (16 9/16 in. (W) x 3 in. (H) 11 6/16 in. (D))
Operating temperature	+5 °C to +35 °C (+41 °F to +95 °F)
Operating humidity	5 % to 85 % (no condensation)
TV system	NTSC

Readable discs

DVD-Video, DVD-RW, DVD-R, DVD+R, DVD+RW, DVD-RAM, Video CD, Super VCD, CD, CD-R/-RW (CD-DA, WMA, MP3, MPEG-4 AAC[1], JPEG, DivX)

Recording discs and formats

DVD-R/-RW: VR mode and Video mode
DVD+R/+RW: +VR mode
DVD-RAM: VR mode
DVD-R DL: VR mode and Video mode
DVD+R DL: +VR mode

Video recording format

Sampling frequency	13.5 MHz
Compression format	MPEG

Audio recording format

Sampling frequency	48 kHz
Compression format	Dolby Digital or Linear PCM (uncompressed)

Recording time
HDD
DVR-660H-K (250 GB)

XP+	Approx. 36 h
Fine (XP)	Approx. 53 h
Standard Play (SP)	Approx. 106 h
Long Play (LP)	Approx. 212 h
Extended Play (EP)	Approx. 319 h
Super Long Play (SLP)	Approx. 425 h
Super Extended Play (SEP)	Approx. 532 h
Manual Mode (MN)	Approx. 36 h to 711 h

DVR-560H-K/DVR-460H-K (160 GB)

XP+	Approx. 23 h
Fine (XP)	Approx. 34 h
Standard Play (SP)	Approx. 68 h
Long Play (LP)	Approx. 136 h
Extended Play (EP)	Approx. 204 h
Super Long Play (SLP)	Approx. 272 h
Super Extended Play (SEP)	Approx. 340 h
Manual Mode (MN)	Approx. 23 h to 455 h

DVD-R/-RW, DVD+R/+RW, DVD-RAM

Fine (XP)	Approx. 1 h
Standard Play (SP)	Approx. 2 h
Long Play (LP)	Approx. 4 h
Extended Play (EP)	Approx. 6 h
Super Long Play (SLP)	Approx. 8 h
Super Extended Play (SEP)	Approx. 10 h *(DVD-R/-RW, DVD-RAM only)*
Manual Mode (MN)	
DVD-R/-RW/-RAM	Approx. 1 h to 13 h
DVD+R/+RW	Approx. 1 h to 8 h

DVD-R DL/DVD+R DL

Fine (XP)	Approx. 1 h 51 m
Standard Play (SP)	Approx. 3 h 35 m
Long Play (LP)	Approx. 7 h 11 m
Extended Play (EP)	Approx. 10 h 46 m
Super Long Play (SLP)	Approx. 14 h 21 m (DVD-R DL) Approx. 14 h 4 m (DVD+R DL)
Super Extended Play (SEP)	Approx. 17 h 57 m *(DVD-R DL only)*
Manual Mode (MN)	
DVD-R DL	Approx. 1 h 51 m to 24 h
DVD+R DL	Approx. 1 h 51 m to 14 h 4 m

Timer

Programmes	1 month/32 programmes
Clock	Quartz lock (12-hour digital display)

Tuner

Receivable channels

VHF	2 ch to 13 ch
UHF	14 ch to 69 ch
CATV	C1 ch to C125 ch

Note

[1] The MPEG-4 AAC files can be played or copied only with the DVR-660H-K.

Input/Output

VHF/UHF antenna input/output terminal
. . . . VHF/UHF set 75 Ω (F-shape connector)
Video input Input1, 3 (rear), Input 2(front)
Input level . . . . 1 Vp-p (75 Ω)
Jacks RCA jacks
Video output. . . . . Output 1, 2
Output level . . . . 1 Vp-p (75 Ω)
Jacks RCA jack
S-Video input Input1, 3 (rear), Input 2(front)
Y (luminance) - Input level. . . . . 1 Vp-p (75 Ω)
C (colour) - Input level . . . . 300 mVp-p (75 Ω)
Jacks. . . . . . .4-pin mini DINS-Video outputOutput 1, 2
Y (luminance) - Output level . . . . 1 Vp-p (75 Ω)
C (colour) - Output level. . . . . 300 mVp-p (75 Ω)
Jacks 4-pin mini DIN
Component video output
Output level . . . . Y: 1.0 Vp-p (75 Ω)
P_B, P_R: 0.7 Vp-p (75 Ω)
Jacks . . . . RCA jacks
Audio input Input1, 3 (rear), Input 2(front) L/R
During audio input. . . . . 2 V rms
(Input impedance: more than 22 kΩ)
Jacks RCA jacks
Audio output . . . . Output 1, 2 L/R
During audio output . . . . 2 V rms
(Output impedance: less than 1.5 kΩ)
Jacks RCA jacks (Output)
Control input . . . . Mini jack
Digital audio output . . . . .Coaxial
DV input . . . . 4-pin (front)
(i.LINK/IEEE 1394 standard)
USB . . . . Type A (front), Type B (front)
HDMI output 19-pin
LAN (DVR-660H-K only)
. . . . .Ethernet jack (10BASE-T/100BASE-TX)

Supplied accessories

Remote control 1
Dry cell batteries (AA/R6P). 2
Audio/Video cable (red/white/yellow) 1
RF antenna cable 1
Power cable 1
Operating Instructions
Warranty card 1

Note: The specifications and design of this product are subject to change without notice, due to improvement.

This product includes FontAvenue® fonts licenced by NEC Corporation. FontAvenue is a registered trademark of NEC Corporation.

Microsoft product screen shots reprinted with permission from Microsoft Corporation.

Music recognition technology and related data are provided by Gracenote®. Gracenote is the industry standard in music recognition technology and related content delivery. For more information, please visit www.gracenote.com.

CD and music-related data from Gracenote, Inc., copyright © 2000-2007 Gracenote. Gracenote Software, copyright © 2000-2007 Gracenote. This product and service may practice one or more of the following U.S. Patents: #5,987,525; #6,061,680; #6,154,773, #6,161,132, #6,230,192, #6,230,207, #6,240,459, #6,330,593, and other patents issued or pending. Some services supplied under license from Open Globe, Inc. for U.S. Patent: #6,304,523.

Gracenote and CDDB are registered trademarks of Gracenote. The Gracenote logo and logotype, and the "Powered by Gracenote" logo are trademarks of Gracenote.

This application or device contains software from Gracenote, Inc. of Emeryville, California ("Gracenote"). The software from Gracenote (the "Gracenote Software") enables this application to perform disc and/or file identification and obtain music-related information, including name, artist, track, and title information ("Gracenote Data") from online servers or embedded databases (collectively, "Gracenote Servers") and to perform other functions. You may use Gracenote Data only by means of the intended End-User functions of this application or device.

You agree that you will use Gracenote Data, the Gracenote Software, and Gracenote Servers for your own personal non-commercial use only. You agree not to assign, copy, transfer or transmit the Gracenote Software or any Gracenote Data to any third party. YOU AGREE NOT TO USE OR EXPLOIT GRACENOTE DATA, THE GRACENOTE SOFTWARE, OR GRACENOTE SERVERS, EXCEPT AS EXPRESSLY PERMITTED HEREIN.

You agree that your non-exclusive license to use the Gracenote Data, the Gracenote Software, and Gracenote Servers will terminate if you violate these restrictions. If your license terminates, you agree to cease any and all use of the Gracenote Data, the Gracenote Software, and Gracenote Servers. Gracenote reserves all rights in Gracenote Data, the Gracenote Software, and the Gracenote Servers, including all ownership rights. Under no circumstances will Gracenote become liable for any payment to you for any information that you provide. You agree that Gracenote, Inc. may enforce its rights under this Agreement against you directly in its own name.

The Gracenote service uses a unique identifier to track queries for statistical purposes. The purpose of a randomly assigned numeric identifier is to allow the Gracenote service to count queries without knowing anything about who you are. For more information, see the web page for the Gracenote Privacy Policy for the Gracenote service.

The Gracenote Software and each item of Gracenote Data are licensed to you "AS IS." Gracenote makes no representations or warranties, express or implied, regarding the accuracy of any Gracenote Data from in the Gracenote Servers. Gracenote reserves the right to delete data from the Gracenote Servers or to change data categories for any cause that Gracenote deems sufficient. No warranty is made that the Gracenote Software or Gracenote Servers are error-free or that functioning of Gracenote Software or Gracenote Servers will be uninterrupted. Gracenote is not obligated to provide you with new enhanced or additional data types or categories that Gracenote may provide in the future and is free to discontinue its services at any time.

GRACENOTE DISCLAIMS ALL WARRANTIES EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, AND NON-INFRINGEMENT. GRACENOTE DOES NOT WARRANT THE RESULTS THAT WILL BE OBTAINED BY YOUR USE OF THE GRACENOTE SOFTWARE OR ANY GRACENOTE SERVER. IN NO CASE WILL GRACENOTE BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES OR FOR ANY LOST PROFITS OR LOST REVENUES.

The contents of the Gracenote data in both the recorder and the dedicated server are not 100% guaranteed.

The supply of the Gracenote data in the dedicated server may be stopped without prior notice for the reason of maintenance, etc.

The Gracenote data communication service of the dedicated server may be stopped without the consent of the users in case the required content cannot be collected or for other reason that hinders provision of the service.

2.3 DISC/CONTENT FORMAT

HDD/DVD Recording and playback compatibility

This recorder can play and record all widely-used DVD disc types, and additionally provides HDD functionality. The table below shows some specific compatibility differences between the different disc types.

	HDD	DVD-R		DVD-RW		DVD+R	DVD +RW	DVD -RAM
Marks used in this manual	HDD	DVD (VR) *1	DVD (Video)	DVD (VR) *1	DVD (Video) *2	DVD+R	DVD+RW	DVD-RAM *13, 16
Logos	HDD HARD DISK DRIVE	DVD R		DVD RW	DVD RW RW 2	RW DVD+R	RW DVD+ReWritable RW High Speed DVD+ReWritable	DVD RAM
Re-recordable/ Erasable	●	*3	*3	●	●	*3	*14	●
Editing of recorded programmes	●	●	*4	●	*4	*4	*4	●
Recording of Copy-once protected material	●	*12		*12				*12
Playback in other players/recorders	n/a	*5	*6	*7	*6	*6, 15	*8	*9
Chase play	●							
16:9 and 4:3 programme recording	●	●		●				●
Dual mono broadcast recording of both audio channels	*10, 11	*11		*11				*11

Notes to table

**1 Must be initialized for VR mode recording.*
**2 Must be initialized for Video mode recording.*
**3 Erasable, but free space does not increase.*
**4 Cannot erase sections, edit chapters or use playlist editing.*
**5 Must be compatible with DVD-R (VR) playback.*
**6 Finalize using this recorder (may not playback in some units).*
**7 Must be compatible with DVD-RW (VR) playback.*
**8 Must be compatible with DVD+RW playback.*
**9 Must be compatible with DVD-RAM playback.*
**10 Only when HDD Recording Format is set to Video Mode Off.*
**11 Only when the recording mode is not set to LPCM.*
**12 CPRM-compatible discs only.*
**13 Take the disc out of the cartridge before use. Only Panasonic and Maxell discs have been tested to work reliably with this recorder. Discs from other makers may become unusable when recorded or edited.*
**14 Erasing a title does not increase the available recording time, nor increase the number of recordable titles left.*
**15 Must be compatible with DVD+R playback.*
**16 Depending on the disc, it may have to be initialized before it can be recorded.*
In this case, initialization may take over one hour.

DVD *is a trademark of DVD Format/Logo Licensing Corporation.*

Using DVD-R DL/DVD+R DL discs

DVD-R DL (Dual-Layer) and DVD+R DL (Double-Layer) discs contain two recordable layers on a single side, giving about 1.8 times the recording capacity of a conventional single-layer disc. This unit can record to both DVD-R DL and DVD+R DL discs.

- If you intend to play DVD-R DL (Video mode) or DVD+R DL discs recorded on this unit on other DVD recorders/players, you must finalize them. (Note that some DVD recorders/players may not play even finalized DL discs.)
- This logo indicates that the disc is a DVD-R DL or DVD+R DL disc:

Correct operation has been confirmed for DL discs:

- DVD-R DL ver. 3.0/2x to 4x
  Mitsubishi Kagaku Media (Verbatim)
- DVD-R DL ver. 3.0/2x to 8x
  Mitsubishi Kagaku Media (Verbatim)
  That's
  JVC
- DVD+R DL 2.4x
  Mitsubishi Kagaku Media (Verbatim)
  RICOH
- DVD+R DL 2.4x to 8x
  Mitsubishi Kagaku Media (Verbatim)
  RICOH

About DualDisc playback

A DualDisc is a new two -sided disc, one side of which contains DVD content – video, audio, etc. – while the other side contains non-DVD content such as digital audio material.

The non-DVD, audio side of the disc is not compliant with the CD audio specification and therefore may not play.

It is possible that when loading or ejecting a DualDisc, the opposite side to that being played will be scratched. Scratched discs may not be playable.

The DVD side of a DualDisc plays in this product. DVD-Audio content will not play.

For more detailed information on the DualDisc specification, please refer to the disc manufacturer or disc retailer.

Other disc compatibility

In addition to DVD, this recorder is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the logos on the disc and/or disc packaging shown below. Note however that some disc types, such as recordable CD (and DVD), may be in an unplayable format — see below for further compatibility information.

Audio CD **CD-R** **CD-RW** **Video CD**

CD-R/-RW compatibility

This recorder cannot record CD-R or CD-RW discs.

- Readable formats: CD audio, Video CD, ISO 9660 CD-ROM* containing MP3, WMA, MPEG-4 AAC[1], JPEG or DivX files
  ** ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this recorder.*
- Multi-session playback: Yes (except CD audio and Video CD)
- Unfinalized disc playback: CD audio only

Compressed audio compatibility

- Compatible media: DVD-ROM, DVD-R/-RW, DVD+R/+RW, DVD-RAM, CD-ROM, CD-R, CD-RW, USB
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA), MPEG-4 AAC[1]

Note

[1] The MPEG-4 AAC files can be played or copied only with the DVR-660H-K.

- Sampling rates (MP3/WMA): 32 kHz, 44.1 kHz or 48 kHz
- Sampling rates (MPEG-4 AAC[1]): 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz or 48 kHz
- Bit-rates: Any (128 kbps or higher recommended)
- Variable bit-rate (VBR) WMA/MP3/ MPEG-4 AAC[1] playback: Yes[2]
- WMA encoder compatibility: Windows Media Codec 8 *(files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)*
- DRM (Digital Rights Management)[3] file playback: No
- File extensions: .mp3, .wma, .m4a[1] (these must be used for the recorder to recognize MP3, WMA and MPEG-4 AAC[1] files – do not use for other file types)
- File structure: The recorder can load up to 99 folders/999 files at one time *(if there are more files/folders that this on the disc then more can be reloaded)*

About MPEG-4 AAC[1]

Advanced Audio Coding (AAC) is at the core of the MPEG-4 AAC standard, which incorporates MPEG-2 AAC, forming the basis of the MPEG-4 audio compression technology. The file format and extension used depend on the application used to encode the AAC file. This unit plays back AAC files encoded by iTunes® bearing the extension '**.m4a**'. DRM-protected files will not play, and files encoded with some versions of iTunes® may not play, or filenames may display incorrectly.

Apple and iTunes are trademarks of Apple Inc., registered in the U.S. and other countries.

WMA (Windows Media™ Audio) content

This recorder can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation.

Windows Media is a trademark of Microsoft Corporation.

This product includes technology owned by Microsoft Corporation and cannot be used or distributed without a license from Microsoft Licensing, Inc.

DivX video compatibility

DivX is a compressed digital video format created by the DivX® video codec from DivX, Inc. Keeping the same terminology as DVD-Video, individual DivX video files are called "Titles". When naming files/titles on a disc prior to burning, keep in mind that by default they will be played in alphabetical order.

- Official DivX® Certified product.
- Plays all versions of DivX® video (including DivX® 6) with standard playback of DivX® media files.
- File extensions: .avi and .divx (these must be used for the recorder to recognize DivX video files). *Note that all files with the .avi extension are recognized as MPEG4, but not all of these are necessarily DivX video files and therefore may not be playable on this recorder.*

Note

[1] The MPEG-4 AAC files can be played or copied only with the DVR-660H-K.

[2] The elapsed playing time may not be displayed properly.

[3] DRM (digital rights management) copy protection is a technology designed to prevent unauthorized copying by restricting playback, etc. of compressed audio files on devices other than the PC (or other recording equipment) used to record it. For detailed information, please see the instruction manuals or help files that came with your PC and/or software.

- File structure: Up to 99 folders or 999 files.

DivX, DivX Certified, and associated logos are trademarks of DivX, Inc. and are used under license.

DivX® VOD content

DivX

In order to play DivX VOD (video on demand) content on this recorder, you first need to register the recorder with your DivX VOD content provider. You do this by generating a DivX VOD registration code, which you submit to your provider.

Some DivX VOD content may only be playable a fixed number of times. When you load a disc containing this type of DivX VOD content, the remaining number of plays is shown on-screen and you then have the option of playing the disc (thereby using up one of the remaining plays), or stopping. If you load a disc that contains expired DivX VOD content (for example, content that has zero remaining plays), the message **Rental Expired** is displayed.

If your DivX VOD content allows an unlimited number of plays, then you may load the disc into your recorder and play the content as often as you like, and no message will be displayed.

Important

- DivX VOD content is protected by a DRM system. This restricts playback of content to specific, registered devices.
- If you load a disc that contains DivX VOD content not authorized for this recorder, the message **Authorization Error** is displayed and the content will not play.
- Resetting the recorder will not cause you to lose your registration code.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files
  **File format used by digital still cameras*
- Sampling ratio: 4:4:4, 4:2:2, 4:2:0
- Horizontal resolution: 160 to 5120 pixels
- Vertical resolution: 120 to 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, .jpeg, .jpe, .jif, .jfif (must be used for the recorder to recognize JPEG files – do not use for other file types)
- File structure: The recorder can load up to 99 folders/999 files at one time *(if there are more files/folders that this on the disc then more can be reloaded)*

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this recorder.

Check the DVD-R/-RW or CD-R/-RW software disc boxes for additional compatibility information.

Dolby Digital

DOLBY DIGITAL STEREO CREATOR

Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

DTS

Manufactured under license under U.S. Patent #: 5,451,942 & other U.S. and worldwide patents issued & pending. DTS and DTS Digital Out are registered trademarks and the DTS logos and Symbol are trademarks of DTS, Inc. © 1996-2007 DTS, Inc. All Rights Reserved.

About the internal hard disk drive

The internal hard disk drive (HDD) is a fragile piece of equipment. When used without the proper care or in the wrong conditions, it is possible that recorded contents may be damaged or lost entirely, in some cases making even normal playback or recording impossible. Please understand that in the event of repair or replacement of the HDD or related components, all your HDD recordings will be lost.

Please use the recorder following the guidelines below to protect against possible HDD failure.

The HDD should not be regarded as a place to store recordings permanently. We recommend that you back up your important recordings onto DVD discs in order to protect against accidental loss.

Pioneer cannot under any circumstances accept responsibility for any direct or indirect loss arising from any inconvenience or loss of recorded material resulting from HDD failure.

- Install and use the recorder on a stable, level surface.
- Do not block the rear vent/cooling fan.
- Do not use the recorder in excessively hot or humid places, or in places that may be subject to sudden changes in temperature. Sudden changes in temperature can cause condensation to form inside the recorder. This can be a cause of HDD failure.
- Do not move the recorder immediately after switching it off. If you need to move the recorder, please follow the steps below:

  1 After the message **POWER OFF** is shown on the front panel display, wait at least two minutes.

  2 Unplug from the wall socket.

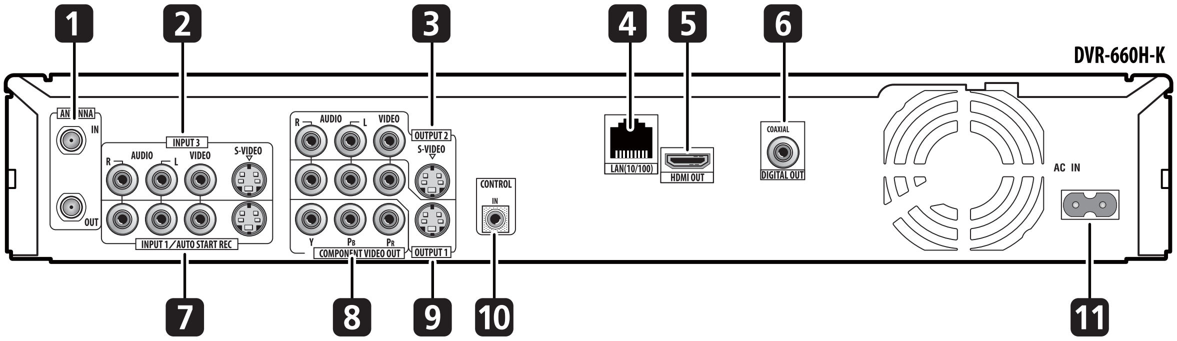
  3 Move the recorder.
- If there's a power failure while the recorder is on there is a chance that some data on the HDD will be lost.
- The HDD is very delicate. If used over time in an improper manner or in an unsuitable environment, it is possible that the HDD will fail. Signs of problems include playback unexpectedly freezing and noticeable block noise (mosaic) in the picture. However, sometimes there will be no warning signs of HDD failure. If the HDD fails, no playback of recorded material will be possible. In this case it will be necessary to replace the HDD unit.

Optimizing HDD performance

As you record and edit material on the HDD, the data on the disk becomes fragmented, eventually affecting the recorder's performance. Before this happens, the recorder will warn you that it is time to optimize the HDD.

2.4 PANEL FACILITIES

[1] Rear Panel


1
2
3
4
5
6
DVR-660H-K
ANTENNA
IN
OUT
INPUT 3
R
AUDIO
L
VIDEO
S-VIDEO
INPUT 1／AUTO START REC
OUTPUT 2
COMPONENT VIDEO OUT
Y
PB
PR
OUTPUT 1
CONTROL
IN
LAN(10/100)
HDMI OUT
COAXIAL
DIGITAL OUT
AC IN
7
8
9
10
11

1 ANTENNA IN (RF IN)/OUT

Connect your TV antenna to the **ANTENNA IN (RF IN)** jack. The signal is passed through to the **ANTENNA OUT** jack for connection to your TV.

2 INPUT 3

Stereo analog audio, video and S-Video inputs for connection to a satellite receiver, set top box, etc.

3 OUTPUT 2

Stereo analog audio, video and S-video outputs for connection to a TV or AV amplifier/receiver.

4 LAN (10/100)

(DVR-660H-K only)

Ethernet port for 10BASE-T (10 Mbps)/ 100BASE-TX (100 Mbps) network connection

5 HDMI OUT

HDMI output for high quality digital audio and video.

6 DIGITAL AUDIO OUT (COAXIAL)

Coaxial digital audio jack for connecting to an AV amplifier/receiver, Dolby Digital/DTS/ MPEG decoder or other equipment with a digital input.

7 INPUT 1/AUTO START REC

Stereo analog audio, video and S-video inputs for connection to a satellite receiver, set top box, etc.

8 COMPONENT VIDEO OUT

A high-quality video output for connecting to a TV or monitor with a component video input.

9 OUTPUT 1

Stereo analog audio, video and S-Video outputs for connection to a TV or AV amplifier/receiver.

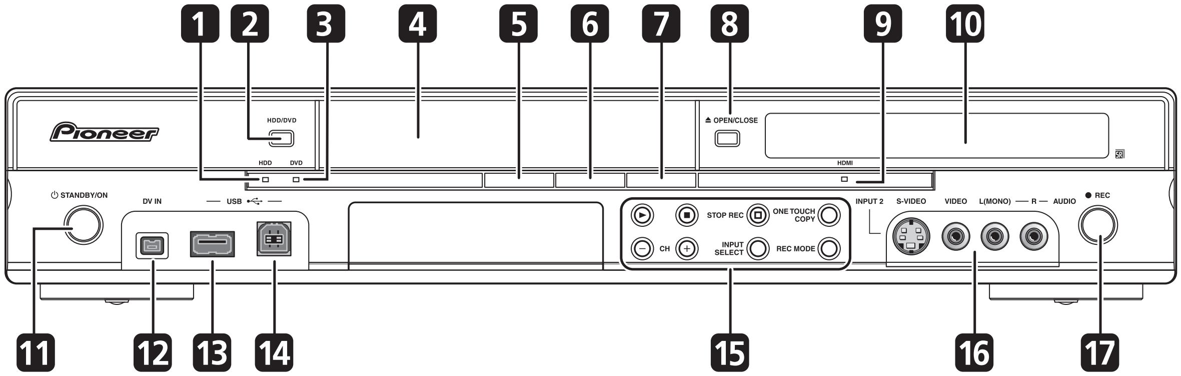
10 CONTROL IN

Use to control this recorder from the remote sensor of another Pioneer component with a **CONTROL OUT** terminal and bearing the Pioneer SR mark. Connect the **CONTROL OUT** of the other component to the **CONTROL IN** of this recorder using a mini-plug cord.

11 AC IN – Power inlet

Connect to a power outlet using the supplied power cable after making all other connections.

[2] Front Panel


1
2
3
4
5
6
7
8
9
10
Pioneer
HDD/DVD
HDD
DVD
⏏ OPEN/CLOSE
HDMI
⏻ STANDBY/ON
DV IN
USB
STOP REC
ONE TOUCH COPY
CH
INPUT SELECT
REC MODE
INPUT 2
S-VIDEO
VIDEO
L(MONO)
R
AUDIO
● REC
11
12
13
14
15
16
17

1 HDD indicator
Lights when the hard disk (HDD) is selected.

2 HDD/DVD
Press to switch between HDD and DVD for recording and playback.

3 DVD indicator
Lights when the DVD drive is selected.

4 Disc tray

5 PC VIDEO
Press to play DivX files you have not yet viewed.

6 MUSIC
Press to play music files in random order.

7 PHOTO
Press to play JPEG files in random order.

8 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

9 HDMI indicator
Lights when this recorder is connected to HDMI (HDCP) compatible component.

10 Front panel display and IR remote sensor

11 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

12 DV IN
A DV input i.LINK connector, suitable for connecting a DV camcorder.

13 USB port (Type A)
USB port for connecting an HDD camcorder, digital camera, keyboard or other USB device.

14 USB port (Type B)
USB port for connecting a PictBridge-compatible printer or PC.

15 ►
Press to start or restart playback.

■
Press to stop playback.

□ STOP REC
Press to stop recording.

ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

CH +/–
Use to change channels, skip chapters/tracks, etc.

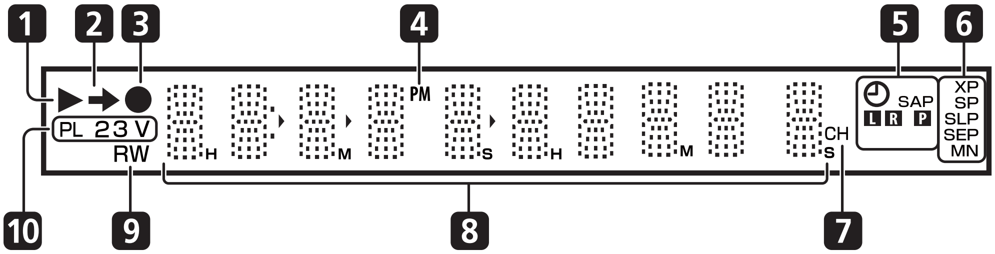
INPUT SELECT
Press to change the input used for recording.

REC MODE
Press repeatedly to cycle through recording modes (picture quality).

16 INPUT 2
Audio/video input (stereo analog audio; composite and S-Video), especially suitable for camcorders, game consoles, portable audio, etc.

17 ● REC
Press to start recording. Press repeatedly to set the recording time in 30 minute blocks.

[3] Display



1 ▶
Lights during playback; blinks when playback is paused.

2 ➡
Lights when copying.

3 ●
Lights during recording; blinks when recording is paused.

4 PM
Lights to indicate PM (after midday) for the clock display.

5 ⏲
Lights when a timer recording has been set. (Indicator blinks if the timer has been set to DVD but there isn't a recordable disc loaded, or the timer has been set to record to the HDD but the HDD is not recordable.)

SAP
Lights when the currently selected TV channel has a Second Audio Programme channel.

L R
Indicates which channels are recorded when **Dual Mono** is selected.

P
Lights when the component video output is set to progressive scan.

6 Recording quality indicators

XP
Lights when the recording mode is set to **XP** (high quality).

SP
Lights when the recording mode is set to **SP** (standard play).

LP/SLP
Lights when the recording mode is set to **LP** (long play) or **SLP** (super-long play).

EP/SEP
Lights when the recording mode is set to **EP** (extended play) or **SEP** (super-extended play).

MN
Lights when the recording mode is set to **MN** (manual recording level) mode.

7 CH
Channel indicator for the built-in TV tuner.

8 Character display

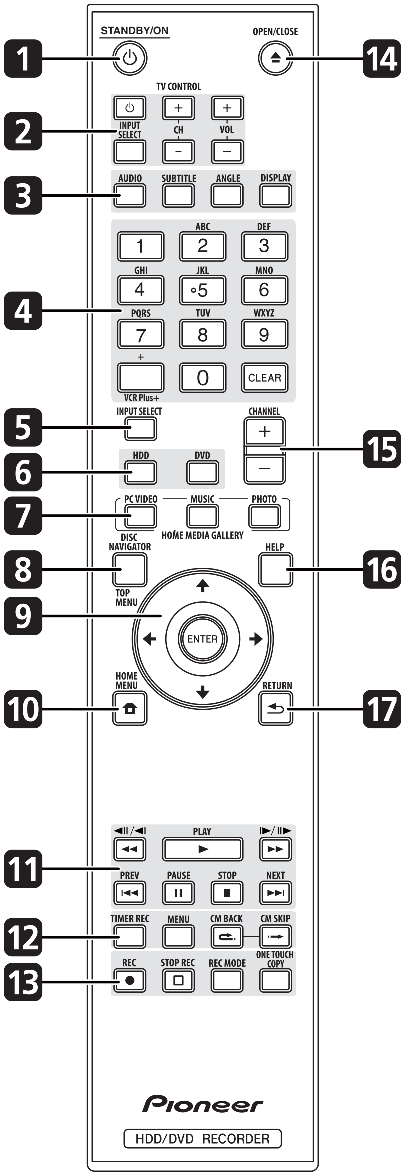
9 R/RW
Lights when a recordable DVD-R or DVD-RW disc is loaded.

10 PL
Lights when a VR mode disc is loaded and the recorder is in Play List mode.

2 3
Shows the remote control mode (if nothing is displayed, the remote control mode is 1).

V
Lights when an unfinalized Video mode disc is loaded.

[4] Remote Control Unit


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
STANDBY/ON
OPEN/CLOSE
TV CONTROL
INPUT SELECT
CH
VOL
AUDIO
SUBTITLE
ANGLE
DISPLAY
ABC
DEF
GHI
JKL
MNO
PQRS
TUV
WXYZ
1
2
3
4
5
6
7
8
9
0
CLEAR
+
VCR Plus+
INPUT SELECT
CHANNEL
HDD
DVD
PC VIDEO
MUSIC
PHOTO
HOME MEDIA GALLERY
DISC NAVIGATOR
HELP
TOP MENU
ENTER
HOME MENU
RETURN
PLAY
PREV
PAUSE
STOP
NEXT
TIMER REC
MENU
CM BACK
CM SKIP
ONE TOUCH COPY
REC
STOP REC
REC MODE
Pioneer
HDD/DVD RECORDER

1 ⏻ STANDBY/ON

Press to switch the recorder on/into standby.

2 TV CONTROL buttons

After setting up, use these controls to control your TV.

3 AUDIO

Press to change the audio language or channel. (When the recorder is stopped, press to change the tuner audio.)

SUBTITLE

Press to display/change the subtitles included in multilingual DVD-Video discs.

ANGLE

Press to switch camera angles on discs with multi-angle scenes.

DISPLAY

Displays/changes the on-screen information displays.

4 Number buttons, CLEAR, +

Use the number buttons for track/chapter/title selection; channel selection, and so on. The same buttons can also be used to enter names for titles, discs and so on.

VCR Plus+®

Press then use the number buttons to enter a PlusCode® programming number for timer recording.

** VCR Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation.*

The VCR Plus+ system is manufactured under license from Gemstar Development Corporation.

Use **CLEAR** to clear an entry and start again.

5 INPUT SELECT

Press to change the input to use for recording.

6 HDD

Press to select the hard disk (HDD) for recording and playback.

DVD

Press to select DVD for recording and playback.

7 HOME MEDIA GALLERY

Files stored on the HDD can easily be played using these buttons.

PC VIDEO

Press to play DivX files you have not yet viewed.

MUSIC
Press to play music files in random order.

PHOTO
Press to play JPEG files in random order.

8 DISC NAVIGATOR / TOP MENU
Press to display the Disc Navigator screen, or the top menu if a DVD-Video or finalized DVD-R/-RW (Video) disc is loaded.

9 ⬆/⬇/⬅/➡ and ENTER
Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

10 HOME MENU
Press to display the Home Menu, from which you can navigate all the functions of the recorder.

11 Playback controls

◄◄ ►►
Press to start reverse or forward scanning. Press again to change the speed.

◄II/◄I I►/II►
While paused, press and hold to start slow-motion playback. Press repeatedly to change the playback speed.

While paused, press to advance a single frame in either direction.

► PLAY
Press to start playback.

I◄◄ PREV ►►I NEXT
Press to skip to the previous or next title/chapter/track; or to display the previous or next menu page.

II PAUSE
Press to pause playback or recording.

■ STOP
Press to stop playback.

12 TIMER REC
Press to start setting a timer recording.

MENU
Press to display the disc menu if a DVD-Video, finalized DVD-R/-RW (Video mode) or finalized DVD+R/+RW disc is loaded.

↩ CM BACK (commercial back)
Press repeatedly to skip progressively backward through the video playing.

→ CM SKIP (commercial skip)
Press repeatedly to skip progressively forward through the video playing.

13 Recording controls

● REC
Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins.

□ STOP REC
Press to stop recording.

REC MODE
Press repeatedly to change the recording mode (picture quality).

ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

14 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

15 CHANNEL +/–
Press to change the channel of the built-in TV tuner.

16 HELP
Press for help on how to use the current GUI screen.

17 RETURN
Press to go back one level in the on-screen menu or display.

3. BASIC ITEMS FOR SERVICE

3.1 CHECK POINTS AFTER SERVICING

To keep the product quality after servicing, confirm recommended check points shown below.

No.	Procedures	Item to be checked
1	Confirm the firmware version on the first screen on Service Mode. Also check the compatibility of each firmware (OK or NG).	The version of each firmware must be the latest. All of firmware compatibility must be "OK". Update firmware to the latest one, if it is not the latest or the compatibility is "NG".
2	Confirm whether the customer complain has been solved. If the customer complain occurs with the specific disc, use it for the operation check.	The customer complain must not be reappeared. Video, audio and operations must be normal.
3	Perform the HDD physical test (Self-Test on HDD check mode).	"NG" must not be appeared.
4	Confirm playback error rates at the innermost and outermost tracks by using the following disc. DVD test disc (GGV1025)	The error rates must be less than 8.0e-4.
5	Record from the tuner (or an external source) to the HDD for 1 minute. After that, play back the content.	Video, audio and operations must be normal.
6	Copy the recorded content on the HDD in the previous step to a DVD-RW disc. After that, play back the disc.	Video, audio and operations must be normal.
7	Confirm the user setting, and whether the test-recorded content have been deleted.	Be sure to delete the test-recorded content on the HDD.
8	Check the appearance of the product.	No scratches or dirt on its appearance after receiving it for service.

See the table below for the items to be checked regarding video and audio:

Items to be checked regarding video	Item to be checked regarding audio
Block noise	Distortion
Horizontal noise	Noise
Dot noise	Volume too low
Disturbed image (video jumpiness)	Volume too high
Too dark	Volume fluctuating
Too bright	Sound interrupted
Mottled color	

[1] Cleaning

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

[2] Necessary Procedure List When Replacing Assys

Following is the surely necessary procedures and the product state after changing, when replacing next ASSYs.

Replaced ASSY	Necessary setting	State after replacing	
		User setting	HDD contents
MAIN ASSY	1. Model setting 2. LD power adjustment 3. CPRM setting 4. Firmware update	×	○
TUJB ASSY	1. Model setting 2. CPRM setting 3. Firmware update	×	○
LOADER ASSY	1. LD power adjustment	○	○
HDD	1. CPRM setting 2.Gracenote Database update	○	×

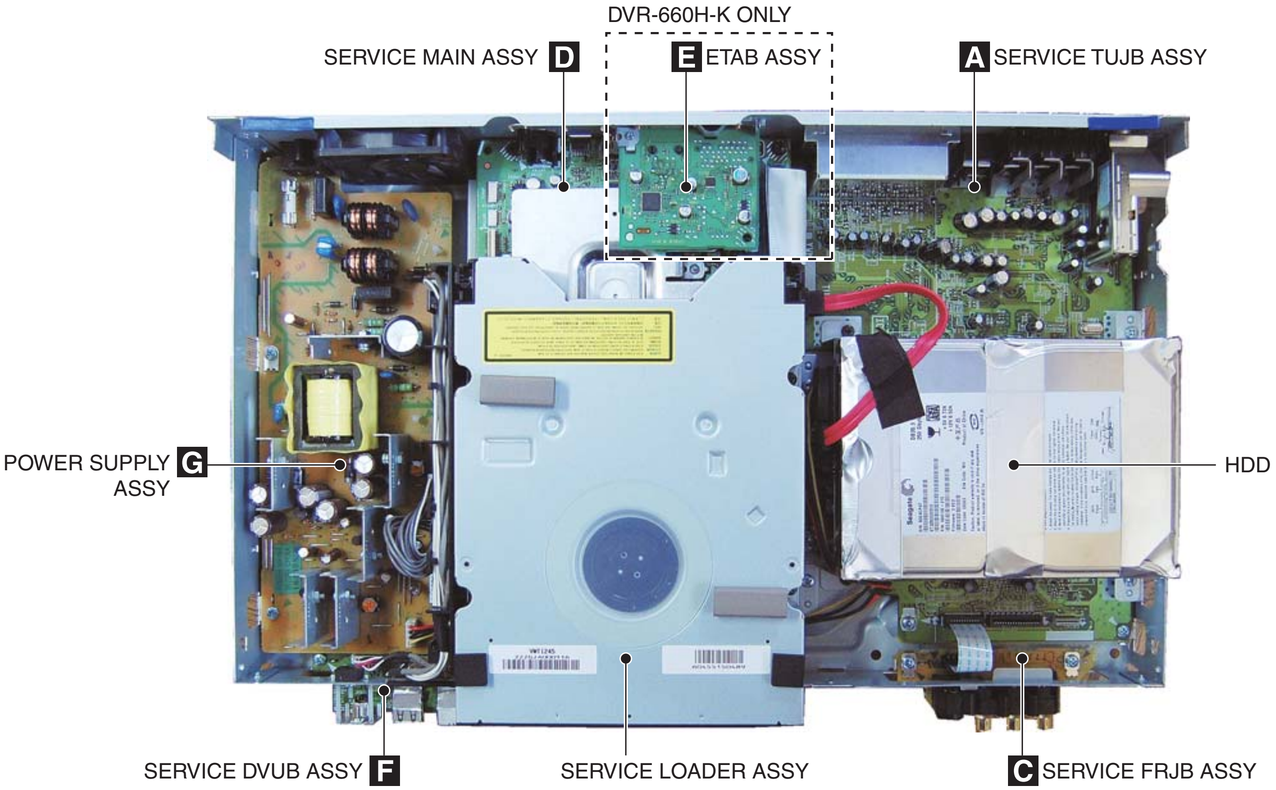
3.2 QUICK REFERENCE

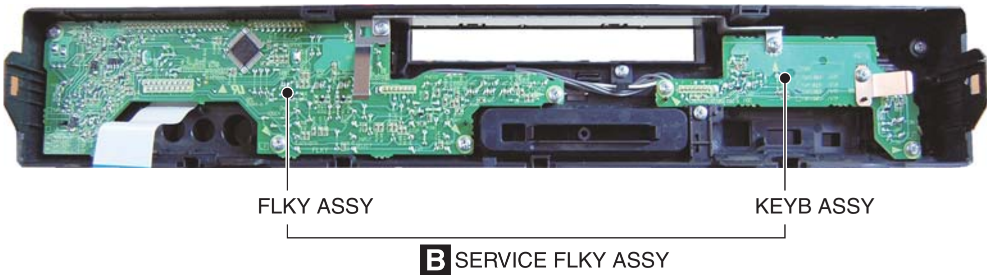
Description of work	Procedure	Jigs
LD power adjustment	[ESC]+[CX]+[1]+[0]	GGF1381 : Service Remote Control Unit
		GGV1054 : CD-ROM (CDT-313)
		GGV1036 : DVD-ROM DL (DVDT-002)
		GGV1278 : Blank DVD-R (That's DR-C12WTY5PA)
		GGV1282 : Blank DVD-RW (JVC VD-W120XH5)
		GGV1284 : Blank DVD-RAM (maxell DRM120C.1P5S)
ID input	[ESC]+[STEREO]	GGF1381 : Service Remote Control Unit
		GGV1321 : ID disc
Firmware update	[REC STOP]+[PLAY]	Update disc
Version check	[ESC]+[DISP]	GGF1381 : Service Remote Control Unit
Error Rate Measurement	[ESC]+[DISP]+[DIG/ANA] × twice	GGF1381 : Service Remote Control Unit
		Operation check disc (See remarks)
HDD Check Mode	[ESC]+[CX]+[0]+[1]	GGF1381 : Service Remote Control Unit
Indication of VR-playback-related error log	[ESC]+[DISP]+[5]+[DIG/ANA]	GGF1381 : Service Remote Control Unit
Indication of VR-recording-related error log	[ESC]+[DISP]+[4]+[DIG/ANA] × 3times	GGF1381 : Service Remote Control Unit

Remarks

Disc for check of recording/playback operations (Note) When judging the drive quality, make sure to use the operation check disc.	Operation check discs (manufacturers and model numbers)	Error rate threshold
	GGV1278 : Blank DVD-R (That's DR-C12WTY5PA)	3.3e-3 or below
	GGV1279 : Blank DVD-R DL (MCM VHR21YD1)	L0 : 3.3e-3 or below L1 : 3.3e-3 or below
	GGV1280 : Blank DVD+R (That's DR+120TY5PA)	3.3e-3 or below
	GGV1281 : Blank DVD+R DL (MCM VTR21N1)	L0 : 3.3e-3 or below L1 : 3.3e-3 or below
	GGV1189 : Blank DVD-RW (JVC VD-W120N10)	3.3e-3 or below
	GGV1282 : Blank DVD-RW [RW2] (JVC VD-W120XH5)	3.3e-3 or below
	GGV1283 : Blank DVD+RW (RICOH D4RWV-S3CW)	3.3e-3 or below
	GGV1284 : Blank DVD-RAM (maxell DRM120C.1P5S)	3.3e-3 or below
	GGV1036 : DVD-ROM DL (DVDT-002)	L0/L1 : 8.0e-4 or below
How to read error rate	X.Xe-Y Y: The bigger the better, X X: The smaller the better	
How to exit from Service Mode	[ESC]	

3.3 PCB LOCATIONS


DVR-660H-K ONLY
SERVICE MAIN ASSY D
E ETAB ASSY
A SERVICE TUJB ASSY
POWER SUPPLY G ASSY
HDD
SERVICE DVUB ASSY F
SERVICE LOADER ASSY
C SERVICE FRJB ASSY


FLKY ASSY
KEYB ASSY
B SERVICE FLKY ASSY

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

LIST OF ASSEMBLIES

• For DVR-660H-K model

Mark	No. Description	Part No.
	1..ETAB ASSY	VWV2344
NSP	1..TUJB ASSY	YWM1007
	2..SERVICE DVUB ASSY	YXX1001
	2..SERVICE TUJB ASSY	YXX1011
NSP	1..FLKB ASSY	YWM1005
	2..SERVICE FRJB ASSY	YXX1004
	2..SERVICE FLKY ASSY	YXX1007
NSP	1..SERVICE LOADER MAIN	VXU1014
	2..SERVICE MAIN ASSY	VXX3309
⚠	1..POWER SUPPLY ASSY	VWR1408
	1..HDD	VXF1131

• For DVR-560H-K,460H-K model

Mark	No. Description	Part No.
NSP	1..TUJB ASSY	YWM1007
	2..SERVICE DVUB ASSY	YXX1001
	2..SERVICE TUJB ASSY	YXX1011
NSP	1..FLKB ASSY	YWM1005
	2..SERVICE FRJB ASSY	YXX1004
	2..SERVICE FLKY ASSY	YXX1007
NSP	1..SERVICE LOADER MAIN	VXU1013
	2..SERVICE MAIN ASSY	VXX3308
⚠	1..POWER SUPPLY ASSY	VWR1408
	1..HDD	VXF1152

3.4 JIGS LIST

[1] Jigs List

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	Adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc Type2	——— (*)	Diagnosis (ID data setting)
FFC Cable (40p)	GGD1436	Diagnosis of MAIN Assy
CD-ROM	GGV1054	LD Power Adjustment
DVD-ROM DL	GGV1036	LD Power Adjustment
Blank DVD-R	GGV1278	LD Power Adjustment
Blank DVD-RW	GGV1282	LD Power Adjustment
Blank DVD-RAM	GGV1284	LD Power Adjustment
Disc Ejection Rod	GGF1529	Emergency Disc Ejection
USB Cable	GGD1445	USB Check Mode
RS-232C I/F Jig	GGF1348	Serial Update
FFC Cable (7P)	VDA1681	Serial Update

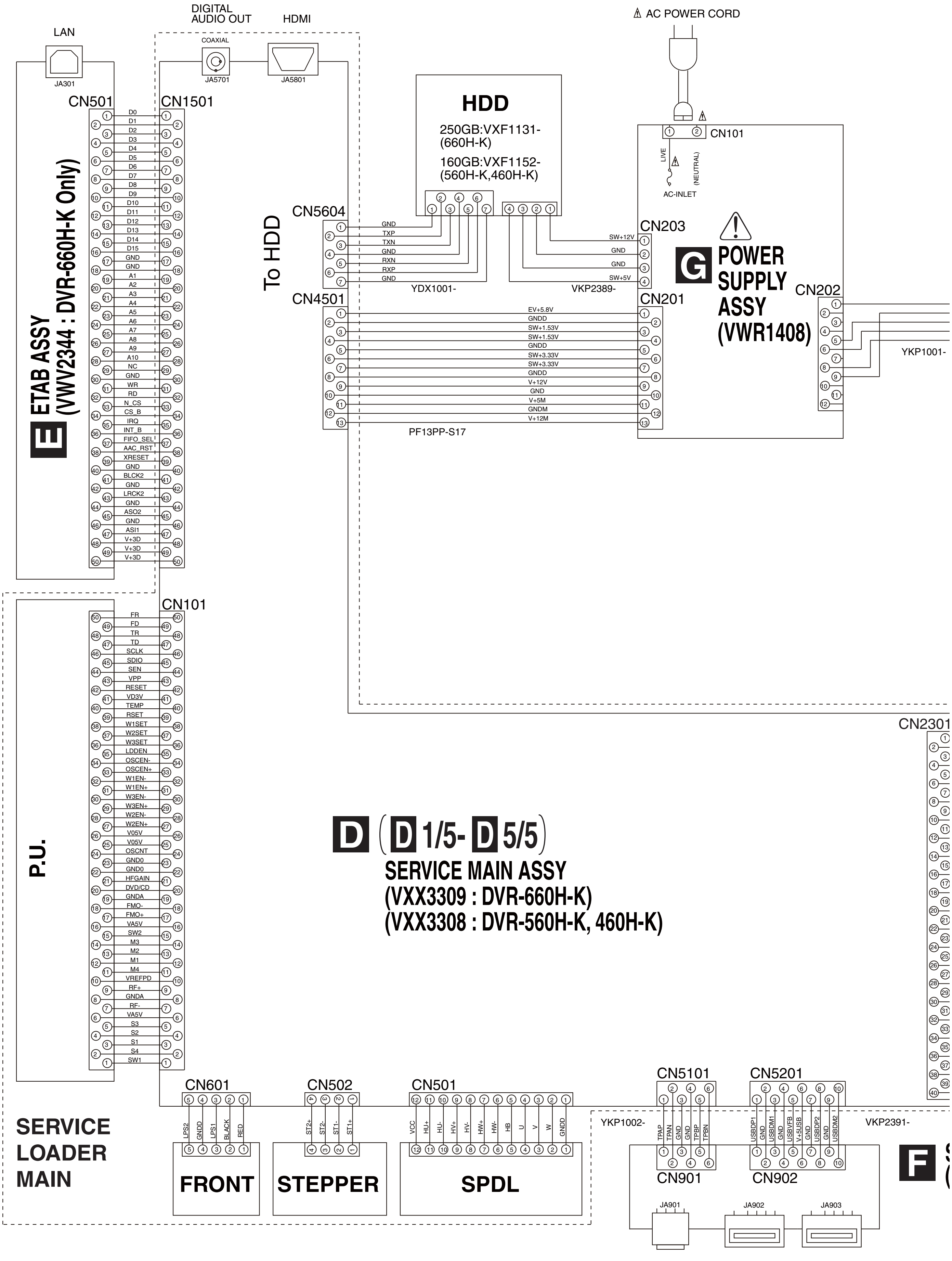
(*) Be sure to use the latest disc (Type 2).
In Apr, 2008, the latest disc is GGV1321.

[2] Lubricants and Glues List

Name	Lubricants and Glues No.	Remarks
Hanarl	GEM1041	refer to "9.3 FRONT PANEL SECTION"

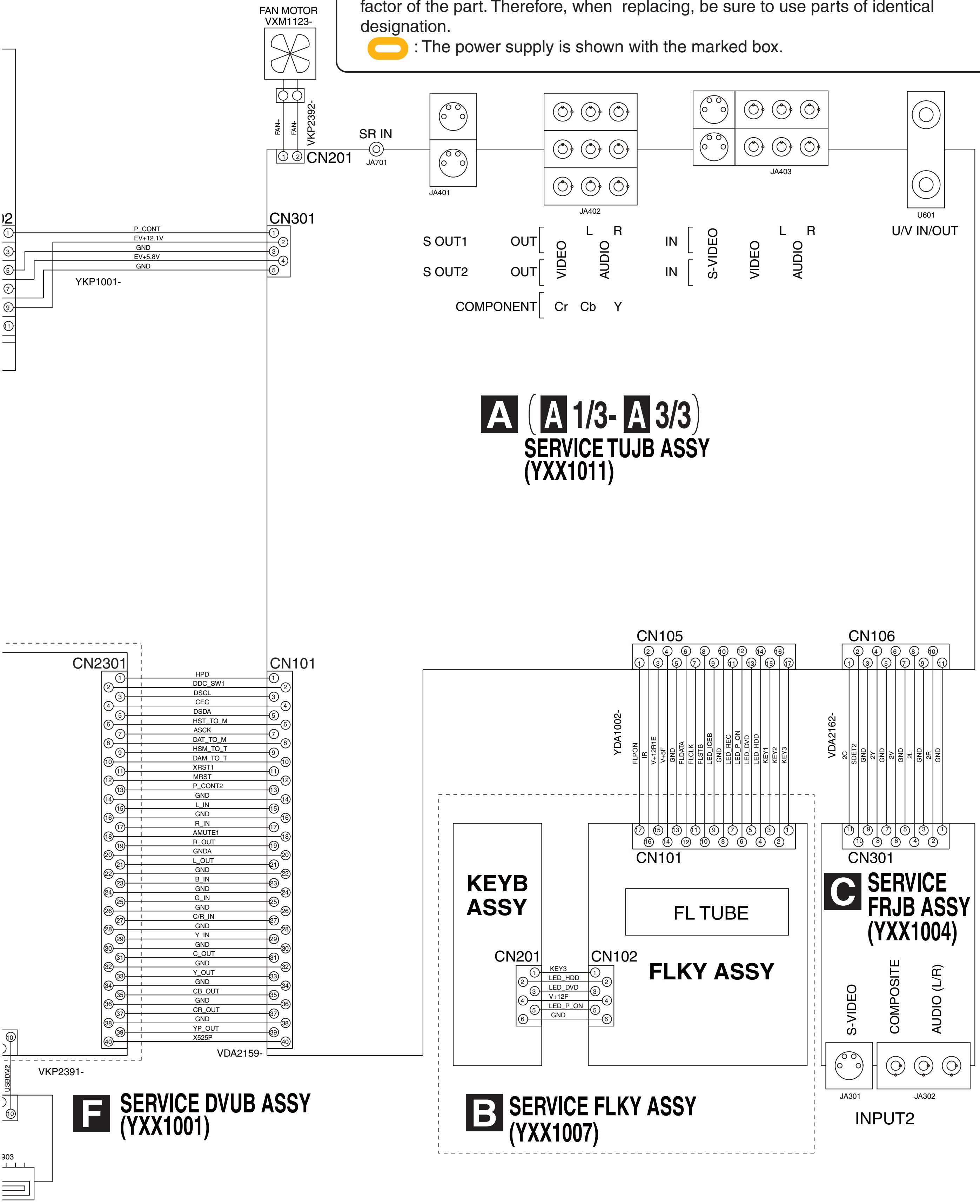
4. BLOCK DIAGRAM

4.1 OVERALL WIRING DIAGRAM

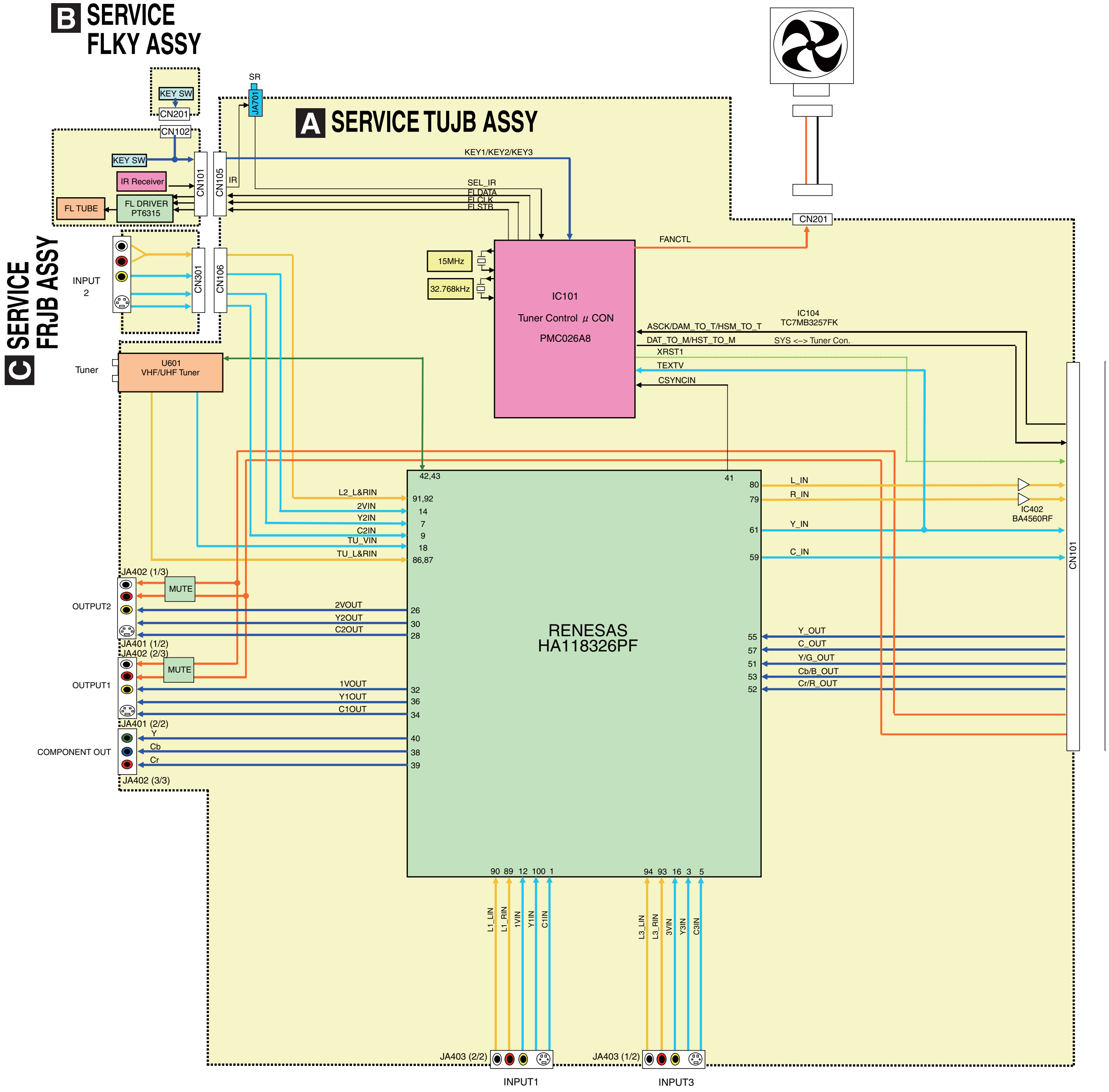


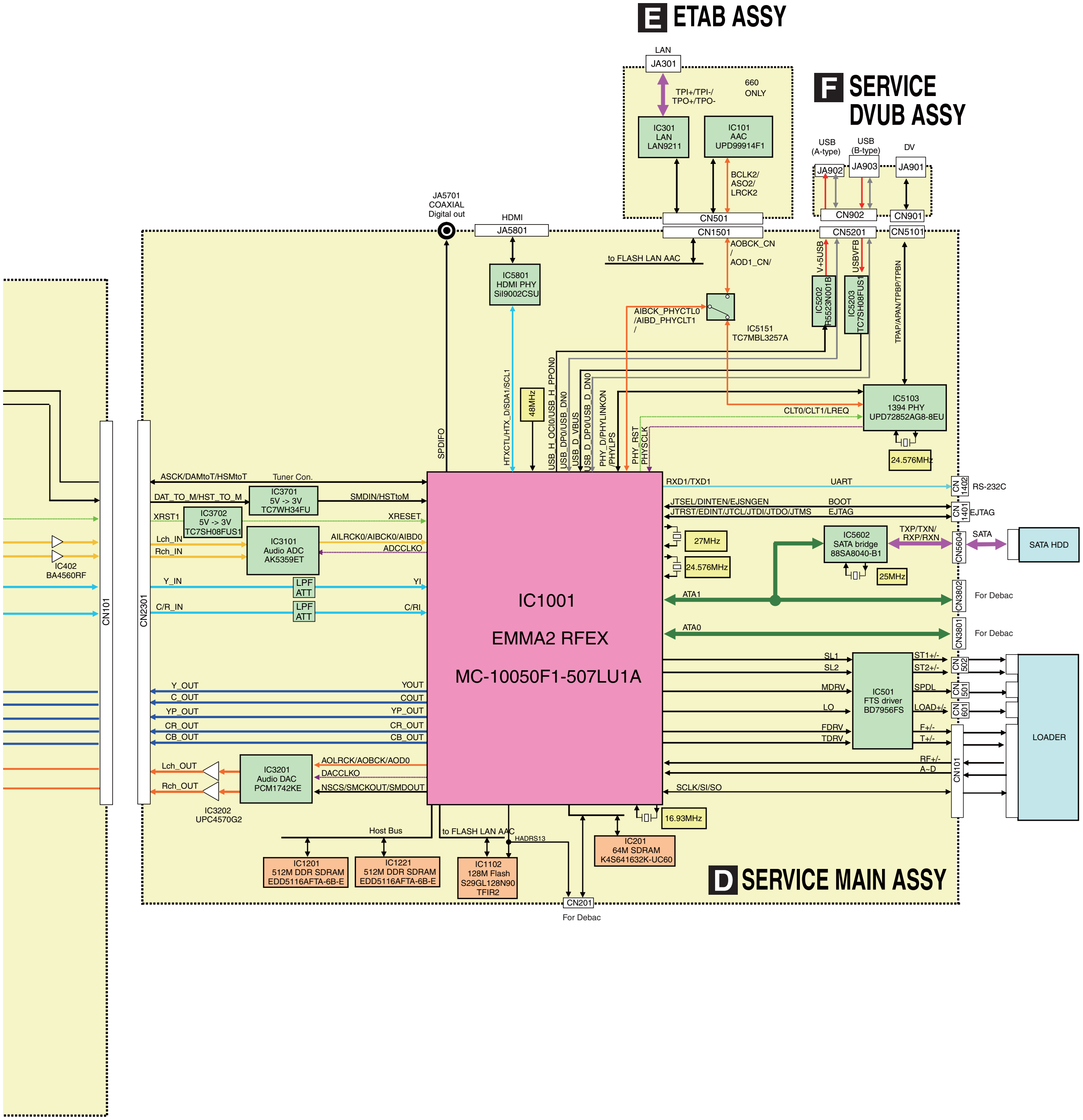
LAN
JA301
DIGITAL AUDIO OUT
COAXIAL
JA5701
HDMI
JA5801
AC POWER CORD
CN501
CN1501
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 GND GND A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 NC GND WR RD N_CS CS_B IRQ INT_B FIFO_SEL AAC_RST XRESET GND BLCK2 GND LRCK2 GND ASO2 GND ASI1 V+3D V+3D V+3D
E ETAB ASSY (VWV2344 : DVR-660H-K Only)
To HDD
HDD
250GB:VXF1131- (660H-K)
160GB:VXF1152- (560H-K,460H-K)
CN5604
GND TXP TXN GND RXN RXP GND
YDX1001-
VKP2389-
CN203
SW+12V GND GND SW+5V
CN101
LIVE
(NEUTRAL)
AC-INLET
G POWER SUPPLY ASSY (VWR1408)
CN4501
CN201
EV+5.8V GNDD SW+1.53V SW+1.53V GNDD SW+3.33V SW+3.33V GNDD V+12V GND V+5M GNDM V+12M
PF13PP-S17
CN202
YKP1001-
CN101
FR FD TR TD SCLK SDIO SEN VPP RESET VD3V TEMP RSET W1SET W2SET W3SET LDDEN OSCEN- OSCEN+ W1EN- W1EN+ W3EN- W3EN+ W2EN- W2EN+ V05V V05V OSCNT GND0 GND0 HFGAIN DVD/CD GNDA FMO- FMO+ VA5V SW2 M3 M2 M1 M4 VREFPD RF+ GNDA RF- VA5V S3 S2 S1 S4 SW1
P.U.
D (D 1/5- D 5/5)
SERVICE MAIN ASSY
(VXX3309 : DVR-660H-K)
(VXX3308 : DVR-560H-K, 460H-K)
CN2301
CN601
LPS2 GNDD LPS1 BLACK RED
CN502
ST2+ ST2- ST1- ST1+
CN501
VCC HU+ HU- HV+ HV- HW+ HW- HB U V W GNDD
SERVICE LOADER MAIN
FRONT
STEPPER
SPDL
CN5101
TPAP TPAN GND GND TPBP TPBN
CN5201
USBDP1 GND USBDM1 GND USBVFB V+5USB GND USBDP2 GND USBDM2
YKP1002-
VKP2391-
CN901
CN902
JA901
JA902
JA903
F

When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
▭ : The power supply is shown with the marked box.

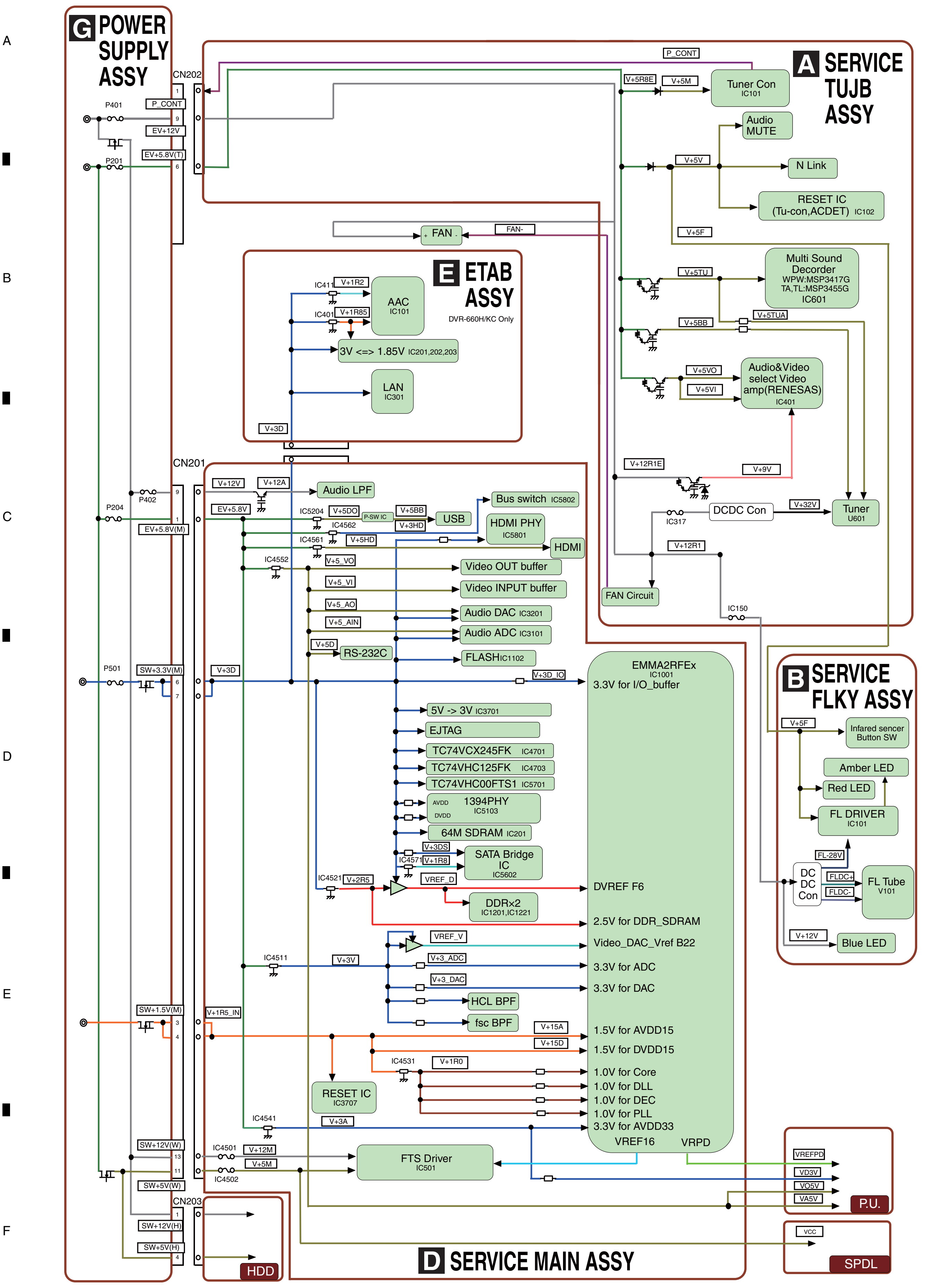

FAN MOTOR
VXM1123-
FAN+
FAN-
VKP2392-
CN201
SR IN
JA701
JA401
JA402
JA403
U601
U/V IN/OUT
CN301
P_CONT
EV+12.1V
GND
EV+5.8V
GND
YKP1001-
S OUT1
S OUT2
OUT
OUT
VIDEO
AUDIO
L R
IN
IN
S-VIDEO
VIDEO
AUDIO
L R
COMPONENT
Cr Cb Y
A (A 1/3- A 3/3)
SERVICE TUJB ASSY
(YXX1011)
CN2301
CN101
HPD
DDC_SW1
DSCL
CEC
DSDA
HST_TO_M
ASCK
DAT_TO_M
HSM_TO_T
DAM_TO_T
XRST1
MRST
P_CONT2
GND
L_IN
GND
R_IN
AMUTE1
R_OUT
GNDA
L_OUT
GND
B_IN
GND
G_IN
GND
C/R_IN
GND
Y_IN
GND
C_OUT
GND
Y_OUT
GND
CB_OUT
GND
CR_OUT
GND
YP_OUT
X525P
VDA2159-
VKP2391-
USBDM2
F SERVICE DVUB ASSY
(YXX1001)
CN105
CN106
YDA1002-
FLPON
IR
V+12R1E
V+5F
GND
FLDATA
FLCLK
FLSTB
LED_ICEB
GND
LED_REC
LED_P_ON
LED_DVD
LED_HDD
KEY1
KEY2
KEY3
VDA2162-
2C
SDET2
GND
2Y
GND
2V
GND
2L
GND
2R
GND
CN101
CN301
KEYB
ASSY
FL TUBE
CN201
CN102
KEY3
LED_HDD
LED_DVD
V+12F
LED_P_ON
GND
FLKY ASSY
B SERVICE FLKY ASSY
(YXX1007)
C SERVICE FRJB ASSY
(YXX1004)
S-VIDEO
COMPOSITE
AUDIO (L/R)
JA301
JA302
INPUT2

4.2 OVERALL BLOCK DIAGRAM


B SERVICE FLKY ASSY
KEY SW
CN201
CN102
KEY SW
IR Receiver
FL TUBE
FL DRIVER PT6315
CN101
CN105
IR
SR
JA701
A SERVICE TUJB ASSY
KEY1/KEY2/KEY3
SEL_IR
FLDATA
FLCLK
FLSTB
CN201
FANCTL
C SERVICE FRJB ASSY
INPUT 2
CN301
CN106
15MHz
32.768kHz
IC101
Tuner Control µ CON
PMC026A8
IC104
TC7MB3257FK
ASCK/DAM_TO_T/HSM_TO_T
DAT_TO_M/HST_TO_M
SYS <--> Tuner Con.
XRST1
TEXTV
CSYNCIN
Tuner
U601
VHF/UHF Tuner
42,43
41
L2_L&RIN
2VIN
Y2IN
C2IN
TU_VIN
TU_L&RIN
91,92
14
7
9
18
86,87
80
79
61
59
L_IN
R_IN
Y_IN
C_IN
IC402
BA4560RF
CN101
JA402 (1/3)
MUTE
OUTPUT2
2VOUT
Y2OUT
C2OUT
26
30
28
JA401 (1/2)
JA402 (2/3)
MUTE
OUTPUT1
1VOUT
Y1OUT
C1OUT
32
36
34
JA401 (2/2)
COMPONENT OUT
Y
Cb
Cr
40
38
39
JA402 (3/3)
RENESAS
HA118326PF
55
57
51
53
52
Y_OUT
C_OUT
Y/G_OUT
Cb/B_OUT
Cr/R_OUT
90 89 12 100 1
94 93 16 3 5
L1_LIN
L1_RIN
1VIN
Y1IN
C1IN
L3_LIN
L3_RIN
3VIN
Y3IN
C3IN
JA403 (2/2)
JA403 (1/2)
INPUT1
INPUT3

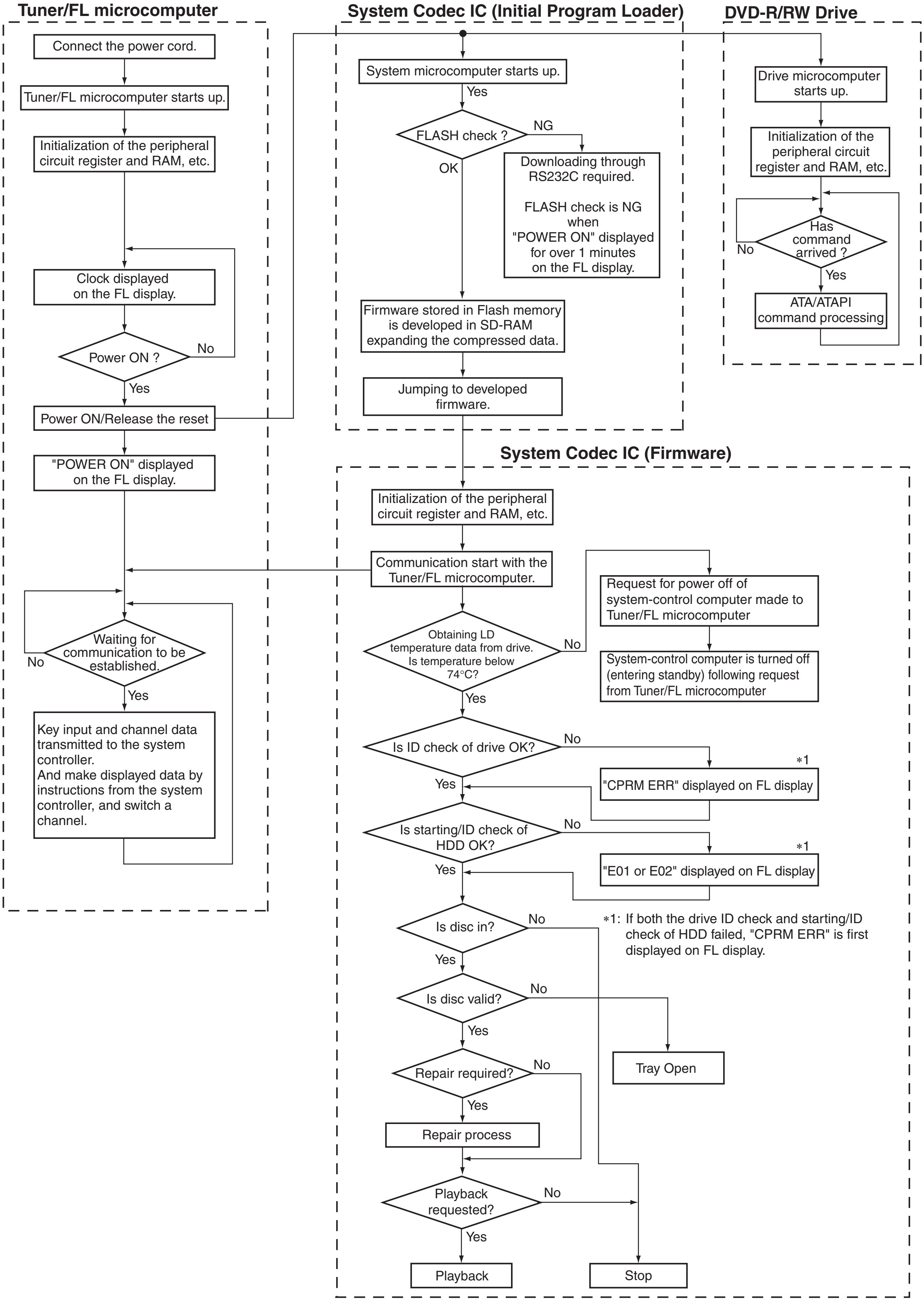

E ETAB ASSY
LAN
JA301
TPI+/TPI-/
TPO+/TPO-
660
ONLY
IC301
LAN
LAN9211
IC101
AAC
UPD99914F1
BCLK2/
ASO2/
LRCK2
CN501
F SERVICE
DVUB ASSY
USB
(A-type)
USB
(B-type)
DV
JA902
JA903
JA901
CN902
CN901
JA5701
COAXIAL
Digital out
HDMI
JA5801
CN1501
CN5201
CN5101
AOBCK_CN
/
AOD1_CN/
to FLASH LAN AAC
IC5801
HDMI PHY
SiI9002CSU
V+5USB
USBVFB
IC5202
R5523N001B
IC5203
TC7SH08FUS1
TPAP/APAN/TPBP/TPBN
AIBCK_PHYCTL0
/AIBD_PHYCLT1
/
IC5151
TC7MBL3257A
USB_H_PPON0
USB_H_OCI0/USB_H_DN0
USB_DP0/USB_DN0
USB_D_VBUS
USB_D_DP0/USB_D_DN0
PHY_D/PHYLINKON
/PHYLPS
PHY_RST
PHYSCLK
48MHz
HTXCTL/HTX_D/SDA1/SCL1
SPDIFO
IC5103
1394 PHY
UPD72852AG8-8EU
CLT0/CLT1/LREQ
24.576MHz
ASCK/DAMtoT/HSMtoT
Tuner Con.
DAT_TO_M/HST_TO_M
IC3701
5V -> 3V
TC7WH34FU
SMDIN/HSTtoM
XRST1
IC3702
5V -> 3V
TC7SH08FUS1
XRESET
Lch_IN
Rch_IN
IC3101
Audio ADC
AK5359ET
AILRCK0/AIBCK0/AIBD0
ADCCLKO
IC402
BA4560RF
Y_IN
LPF
ATT
YI
C/R_IN
LPF
ATT
C/RI
CN101
CN2301
IC1001
EMMA2 RFEX
MC-10050F1-507LU1A
Y_OUT
YOUT
C_OUT
COUT
YP_OUT
YP_OUT
CR_OUT
CR_OUT
CB_OUT
CB_OUT
Lch_OUT
Rch_OUT
IC3201
Audio DAC
PCM1742KE
AOLRCK/AOBCK/AOD0
DACCLKO
NSCS/SMCKOUT/SMDOUT
IC3202
UPC4570G2
RXD1/TXD1
UART
CN 1402
RS-232C
JTSEL/DINTEN/EJSNGEN
BOOT
JTRST/EDINT/JTCL/JTDI/JTDO/JTMS
EJTAG
CN 1401
EJTAG
27MHz
24.576MHz
IC5602
SATA bridge
88SA8040-B1
25MHz
TXP/TXN/
RXP/RXN
SATA
CN5604
SATA HDD
ATA1
CN3802
For Debac
ATA0
CN3801
For Debac
SL1
SL2
MDRV
LO
FDRV
TDRV
IC501
FTS driver
BD7956FS
ST1+/-
ST2+/-
SPDL
LOAD+/-
F+/-
T+/-
RF+/-
A~D
CN 502
CN 501
CN 601
CN101
LOADER
SCLK/SI/SO
16.93MHz
Host Bus
to FLASH LAN AAC
HADRS13
IC1201
512M DDR SDRAM
EDD5116AFTA-6B-E
IC1221
512M DDR SDRAM
EDD5116AFTA-6B-E
IC1102
128M Flash
S29GL128N90
TFIR2
IC201
64M SDRAM
K4S641632K-UC60
CN201
For Debac
D SERVICE MAIN ASSY

4.3 POWER BLOCK DIAGRAM


A
B
C
D
E
F
G POWER SUPPLY ASSY
CN202
P401
P_CONT
EV+12V
EV+5.8V(T)
P201
A SERVICE TUJB ASSY
P_CONT
V+5R8E
V+5M
Tuner Con
IC101
Audio MUTE
V+5V
N Link
RESET IC
(Tu-con,ACDET) IC102
V+5F
FAN
FAN-
Multi Sound Decorder
WPW:MSP3417G
TA,TL:MSP3455G
IC601
V+5TU
V+5BB
V+5TUA
V+5VO
V+5VI
Audio&Video select Video amp(RENESAS)
IC401
V+12R1E
V+9V
DCDC Con
V+32V
Tuner
U601
IC317
V+12R1
FAN Circuit
IC150
E ETAB ASSY
DVR-660H/KC Only
IC411
V+1R2
IC401
V+1R85
AAC
IC101
3V <=> 1.85V IC201,202,203
LAN
IC301
V+3D
CN201
P402
P204
EV+5.8V(M)
V+12V
V+12A
Audio LPF
EV+5.8V
IC5204
V+5DO
P-SW IC
V+5BB
V+3HD
USB
IC4562
IC4561
V+5HD
Bus switch IC5802
HDMI PHY
IC5801
HDMI
IC4552
V+5_VO
Video OUT buffer
V+5_VI
Video INPUT buffer
V+5_AO
Audio DAC IC3201
V+5_AIN
Audio ADC IC3101
V+5D
RS-232C
FLASH IC1102
P501
SW+3.3V(M)
V+3D
V+3D_IO
EMMA2RFEx
IC1001
3.3V for I/O_buffer
5V -> 3V IC3701
EJTAG
TC74VCX245FK IC4701
TC74VHC125FK IC4703
TC74VHC00FTS1 IC5701
AVDD
DVDD
1394PHY
IC5103
64M SDRAM IC201
V+3DS
IC4571
V+1R8
SATA Bridge IC
IC5602
VREF_D
IC4521
V+2R5
DVREF F6
DDRx2
IC1201,IC1221
2.5V for DDR_SDRAM
VREF_V
Video_DAC_Vref B22
IC4511
V+3V
V+3_ADC
3.3V for ADC
V+3_DAC
3.3V for DAC
HCL BPF
fsc BPF
SW+1.5V(M)
V+1R5_IN
V+15A
1.5V for AVDD15
V+15D
1.5V for DVDD15
IC4531
V+1R0
1.0V for Core
1.0V for DLL
1.0V for DEC
1.0V for PLL
RESET IC
IC3707
IC4541
V+3A
3.3V for AVDD33
VREF16
VRPD
SW+12V(W)
IC4501
V+12M
V+5M
FTS Driver
IC501
IC4502
SW+5V(W)
CN203
SW+12V(H)
SW+5V(H)
HDD
D SERVICE MAIN ASSY
B SERVICE FLKY ASSY
V+5F
Infared sencer
Button SW
Amber LED
Red LED
FL DRIVER
IC101
FL-28V
DC DC Con
FLDC+
FLDC-
FL Tube
V101
V+12V
Blue LED
VREFPD
VD3V
VO5V
VA5V
P.U.
VCC
SPDL

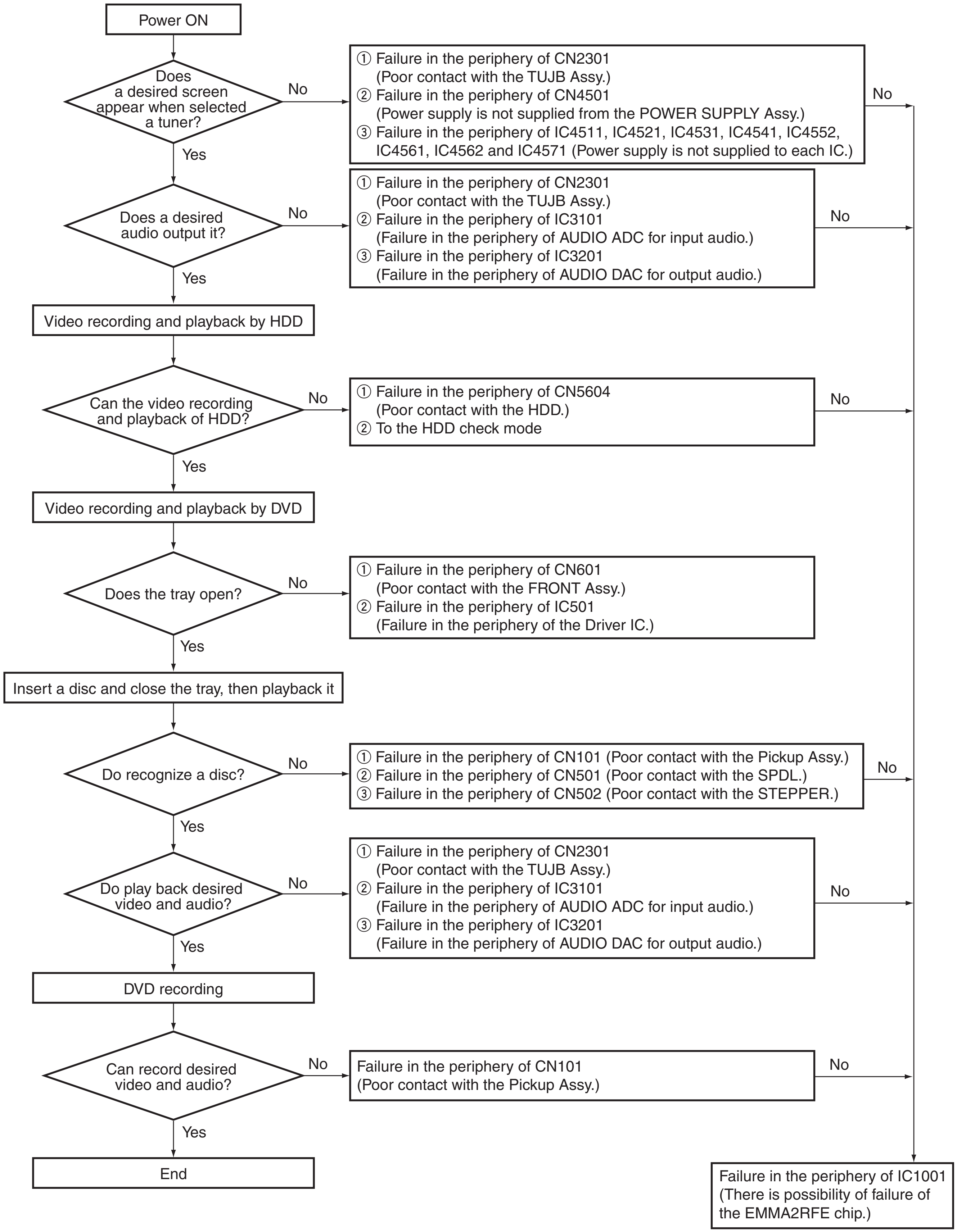
5. DIAGNOSIS

5.1 SETUP SEQUENCE


Tuner/FL microcomputer
Connect the power cord.
Tuner/FL microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Clock displayed on the FL display.
Power ON ?
No
Yes
Power ON/Release the reset
"POWER ON" displayed on the FL display.
Waiting for communication to be established.
No
Yes
Key input and channel data transmitted to the system controller. And make displayed data by instructions from the system controller, and switch a channel.
System Codec IC (Initial Program Loader)
System microcomputer starts up.
Yes
FLASH check ?
NG
OK
Downloading through RS232C required.
FLASH check is NG when "POWER ON" displayed for over 1 minutes on the FL display.
Firmware stored in Flash memory is developed in SD-RAM expanding the compressed data.
Jumping to developed firmware.
DVD-R/RW Drive
Drive microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Has command arrived ?
No
Yes
ATA/ATAPI command processing
System Codec IC (Firmware)
Initialization of the peripheral circuit register and RAM, etc.
Communication start with the Tuner/FL microcomputer.
Obtaining LD temperature data from drive. Is temperature below 74°C?
No
Yes
Request for power off of system-control computer made to Tuner/FL microcomputer
System-control computer is turned off (entering standby) following request from Tuner/FL microcomputer
Is ID check of drive OK?
No
Yes
*1
"CPRM ERR" displayed on FL display
Is starting/ID check of HDD OK?
No
Yes
*1
"E01 or E02" displayed on FL display
Is disc in?
No
Yes
Is disc valid?
No
Yes
Tray Open
Repair required?
No
Yes
Repair process
Playback requested?
No
Yes
Playback
Stop

*1: If both the drive ID check and starting/ID check of HDD failed, "CPRM ERR" is first displayed on FL display.

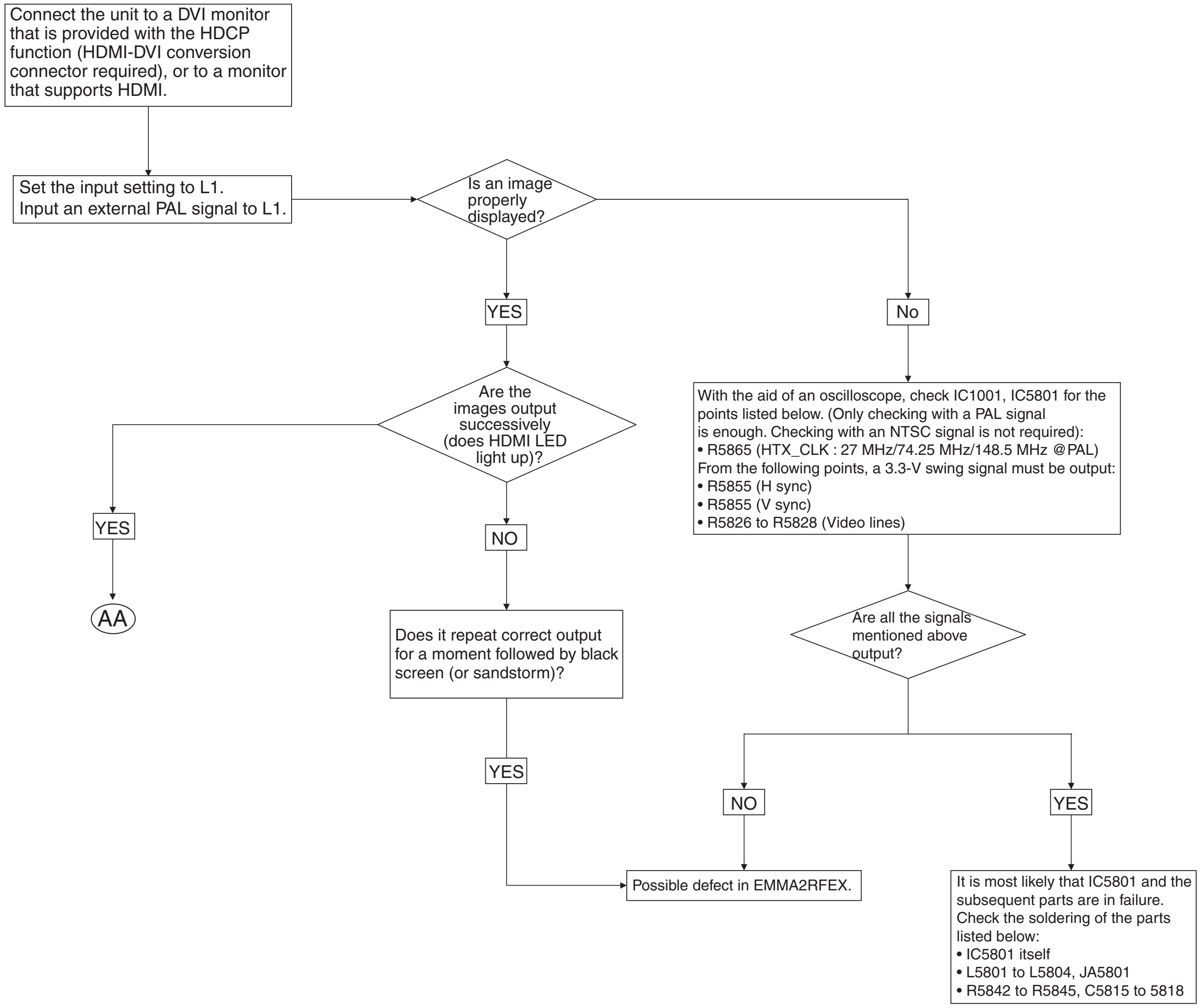
5.2 DIAGNOSIS OF THE MAIN ASSY


Power ON
Does a desired screen appear when selected a tuner?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of CN4501 (Power supply is not supplied from the POWER SUPPLY Assy.)
③ Failure in the periphery of IC4511, IC4521, IC4531, IC4541, IC4552, IC4561, IC4562 and IC4571 (Power supply is not supplied to each IC.)
No
Yes
Does a desired audio output it?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of IC3101 (Failure in the periphery of AUDIO ADC for input audio.)
③ Failure in the periphery of IC3201 (Failure in the periphery of AUDIO DAC for output audio.)
No
Yes
Video recording and playback by HDD
Can the video recording and playback of HDD?
No
① Failure in the periphery of CN5604 (Poor contact with the HDD.)
② To the HDD check mode
No
Yes
Video recording and playback by DVD
Does the tray open?
No
① Failure in the periphery of CN601 (Poor contact with the FRONT Assy.)
② Failure in the periphery of IC501 (Failure in the periphery of the Driver IC.)
Yes
Insert a disc and close the tray, then playback it
Do recognize a disc?
No
① Failure in the periphery of CN101 (Poor contact with the Pickup Assy.)
② Failure in the periphery of CN501 (Poor contact with the SPDL.)
③ Failure in the periphery of CN502 (Poor contact with the STEPPER.)
No
Yes
Do play back desired video and audio?
No
① Failure in the periphery of CN2301 (Poor contact with the TUJB Assy.)
② Failure in the periphery of IC3101 (Failure in the periphery of AUDIO ADC for input audio.)
③ Failure in the periphery of IC3201 (Failure in the periphery of AUDIO DAC for output audio.)
No
Yes
DVD recording
Can record desired video and audio?
No
Failure in the periphery of CN101 (Poor contact with the Pickup Assy.)
No
Yes
End
Failure in the periphery of IC1001 (There is possibility of failure of the EMMA2RFE chip.)

[1] Diagnosis of the HDMI Block

1. In a case when only the HDMI video is not outputted

*This flowchart shows how to confirm the output from the HDMI block on the basis that an external input signal to the L1 connector is through-output from the analog output connector properly.


Connect the unit to a DVI monitor that is provided with the HDCP function (HDMI-DVI conversion connector required), or to a monitor that supports HDMI.

Set the input setting to L1.
Input an external PAL signal to L1.

Is an image properly displayed?

Are the images output successively (does HDMI LED light up)?

Does it repeat correct output for a moment followed by black screen (or sandstorm)?

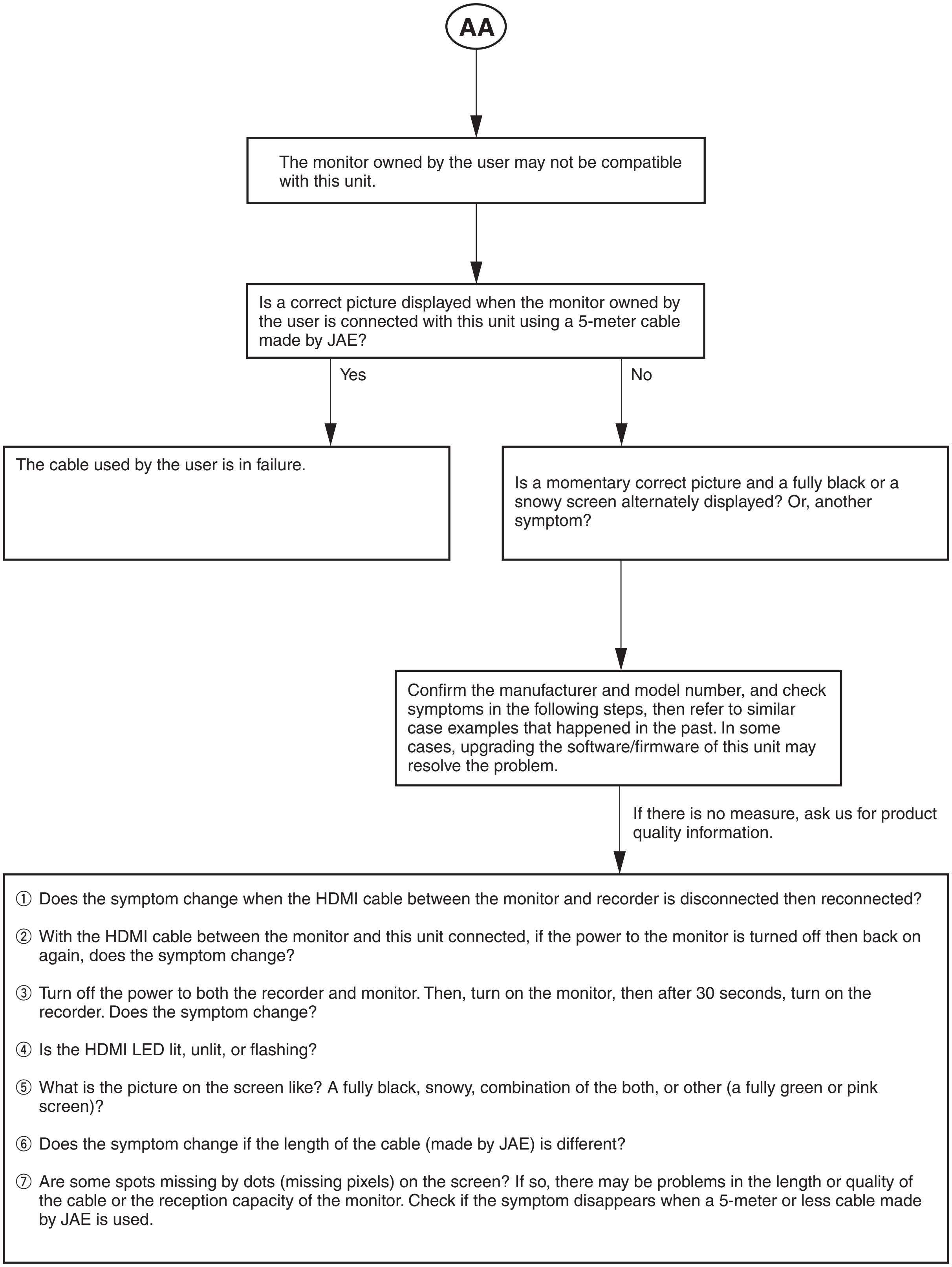
Possible defect in EMMA2RFEX.

With the aid of an oscilloscope, check IC1001, IC5801 for the points listed below. (Only checking with a PAL signal is enough. Checking with an NTSC signal is not required):
- R5865 (HTX_CLK : 27 MHz/74.25 MHz/148.5 MHz @PAL)

From the following points, a 3.3-V swing signal must be output:
- R5855 (H sync)
- R5855 (V sync)
- R5826 to R5828 (Video lines)

Are all the signals mentioned above output?

It is most likely that IC5801 and the subsequent parts are in failure.
Check the soldering of the parts listed below:
- IC5801 itself
- L5801 to L5804, JA5801
- R5842 to R5845, C5815 to 5818



The monitor owned by the user may not be compatible with this unit.

Is a correct picture displayed when the monitor owned by the user is connected with this unit using a 5-meter cable made by JAE?

Yes: The cable used by the user is in failure.

No: Is a momentary correct picture and a fully black or a snowy screen alternately displayed? Or, another symptom?

Confirm the manufacturer and model number, and check symptoms in the following steps, then refer to similar case examples that happened in the past. In some cases, upgrading the software/firmware of this unit may resolve the problem.

If there is no measure, ask us for product quality information.

① Does the symptom change when the HDMI cable between the monitor and recorder is disconnected then reconnected?

② With the HDMI cable between the monitor and this unit connected, if the power to the monitor is turned off then back on again, does the symptom change?

③ Turn off the power to both the recorder and monitor. Then, turn on the monitor, then after 30 seconds, turn on the recorder. Does the symptom change?

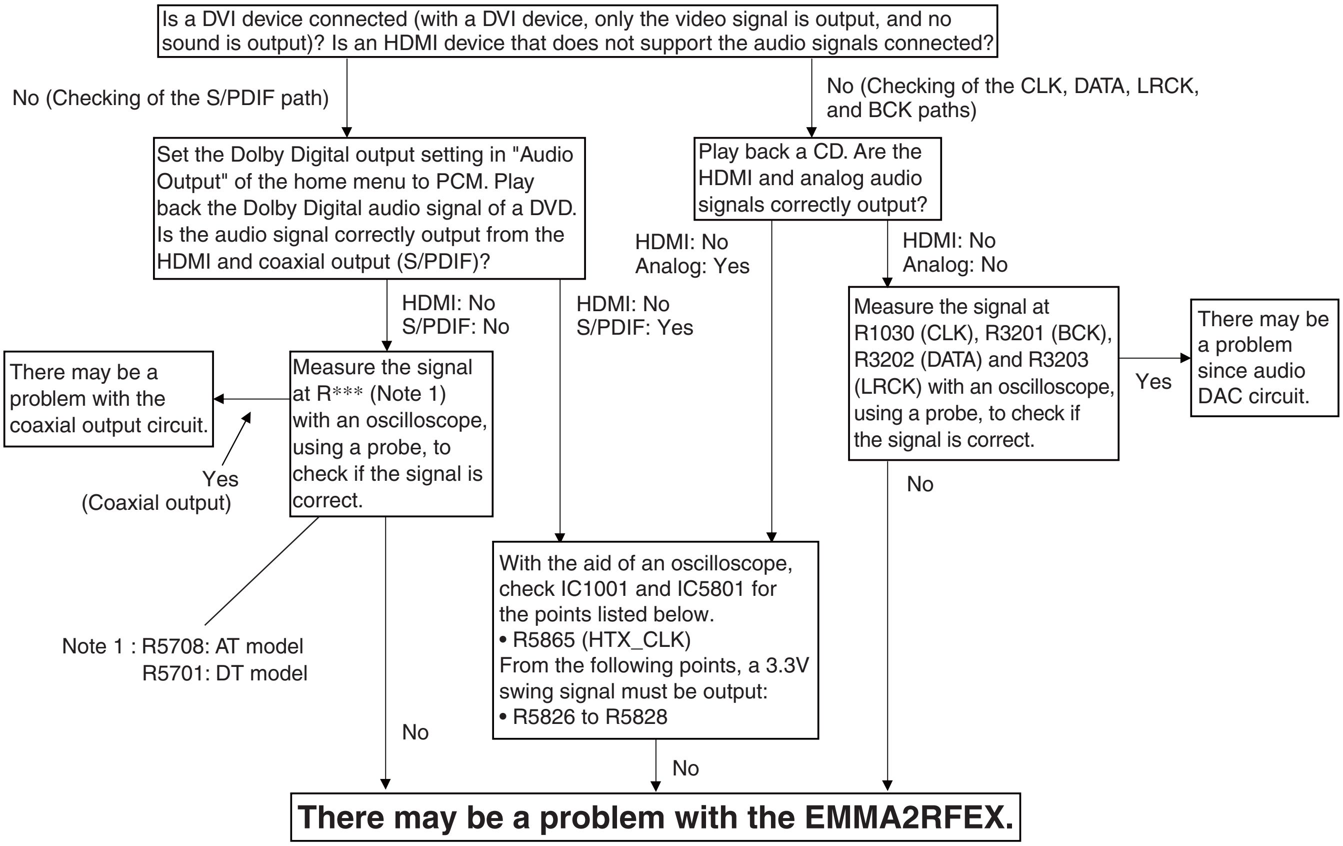
④ Is the HDMI LED lit, unlit, or flashing?

⑤ What is the picture on the screen like? A fully black, snowy, combination of the both, or other (a fully green or pink screen)?

⑥ Does the symptom change if the length of the cable (made by JAE) is different?

⑦ Are some spots missing by dots (missing pixels) on the screen? If so, there may be problems in the length or quality of the cable or the reception capacity of the monitor. Check if the symptom disappears when a 5-meter or less cable made by JAE is used.

2. In a case when only the HDMI audio is not outputted


Is a DVI device connected (with a DVI device, only the video signal is output, and no sound is output)? Is an HDMI device that does not support the audio signals connected?
No (Checking of the S/PDIF path)
No (Checking of the CLK, DATA, LRCK, and BCK paths)
Set the Dolby Digital output setting in "Audio Output" of the home menu to PCM. Play back the Dolby Digital audio signal of a DVD. Is the audio signal correctly output from the HDMI and coaxial output (S/PDIF)?
Play back a CD. Are the HDMI and analog audio signals correctly output?
HDMI: No
Analog: Yes
HDMI: No
Analog: No
HDMI: No
S/PDIF: No
HDMI: No
S/PDIF: Yes
Measure the signal at R1030 (CLK), R3201 (BCK), R3202 (DATA) and R3203 (LRCK) with an oscilloscope, using a probe, to check if the signal is correct.
Yes
There may be a problem since audio DAC circuit.
There may be a problem with the coaxial output circuit.
Measure the signal at R*** (Note 1) with an oscilloscope, using a probe, to check if the signal is correct.
Yes
(Coaxial output)
No
With the aid of an oscilloscope, check IC1001 and IC5801 for the points listed below.
• R5865 (HTX_CLK)
From the following points, a 3.3V swing signal must be output:
• R5826 to R5828
Note 1 : R5708: AT model
R5701: DT model
No
No
There may be a problem with the EMMA2RFEX.

6. SERVICE MODE

◆ Overview and Purposes

To be used to check the status of the product and to collect the information for failure diagnosis.
The following information to be used for servicing is displayed:

[1] First screen	: Version, HDD information, etc.
[2] Second screen	: ATA/ATAPI debug screen (Writer information)
[4] Fourth screen	: VR-recording-related error logs
[5] Fifth screen	: VR-playback-related error logs

Each screen has sublevel screens.

[Note] After entering any Service mode screen, to shift to another Service mode screen, first quit that Service mode screen then enter another Service mode screen.

◆ Service Mode Map

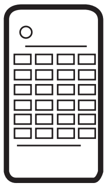
Category	Mode	Procedure	Necessary When
Adjustment	Model Setting	Automatically start up when necessary	After replacing M/B or T/B
Adjustment	LD Power Adjustment	[ESC] + [CX] + [1] + [0]	After replacing M/B or Loader
Adjustment	CPRM ID Number/Data Setting	[ESC] + [STEREO]	After replacing M/B or HDD
Adjustment	Firmware Update	[REC STOP] + [OPEN/CLOSE]	After replacing M/B or T/B
Adjustment	Gracenote Database Update	[REC STOP] + [OPEN/CLOSE]	After replacing HDD
Adjustment	Video Adjustment for Specific Area	[ESC] + [CHP/TIM]	As needed
Adjustment	OSD Filter Setting	[ESC] + [DISP] + [DIG/ANA] x4	As needed
Diagnosis	Version Info, etc.	[ESC] + [DISP]	
Diagnosis	RF Level	[ESC] + [DISP] + [DIG/ANA]	
Diagnosis	Error Rate	[ESC] + [DISP] + [DIG/ANA] x2	
Diagnosis	HDD Info	[ESC] + [DISP] + [DIG/ANA] x3	
Diagnosis	Writer Maintenance Info	[ESC] + [DISP] + [2] + [DIG/ANA] x2 + [SEARCH]	
Diagnosis	LD Degradation Check	[ESC] + [DISP] + [2] + [DIG/ANA] x3 + [SEARCH]	
Diagnosis	DV Info	[ESC] + [DISP] + [3]	
Diagnosis	VR Recording Error Log	[ESC] + [DISP] + [4] + [DIG/ANA] x3	
Diagnosis	VR Playback Error Log	[ESC] + [DISP] + [5] + [DIG/ANA]	
Diagnosis	EPG Info	[ESC] + [DISP] + [7]	Europe model only
Diagnosis	AAC Info	[ESC] + [DISP] + [+10] + [1]	
Diagnosis	HDMI Info	[ESC] + [DISP] + [+10] x2 + [4]	
Diagnosis	Ethernet Info	[ESC] + [DISP] + [+10] x2 + [7]	
Diagnosis	HDD Check	[ESC] + [CX] + [0] + [1]	
Diagnosis	USB Check	[ESC] + <TIMER/REC>	
Diagnosis	DVD Aging Mode	<DVD> + [ESC] + [REP.B] + [PLAY]	
Diagnosis	HDD Aging Mode	<HDD> + [ESC] + [REP.B] + [PLAY]	

6.1 VERSION INFORMATION, ETC. (FIRST SCREEN)

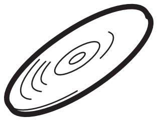
[Purposes]

To check the versions of the system control computer, TUNER microcomputer, and firmware for the drive, simple measurement of the RF level for the U/V tuner, results of the simple error rate measurement, HDD information, and OSD Filter setting

[Tools to be used]



Remote control unit for servicing
(GGF1381)



Aluminum-coated test disc
(GGV1025)

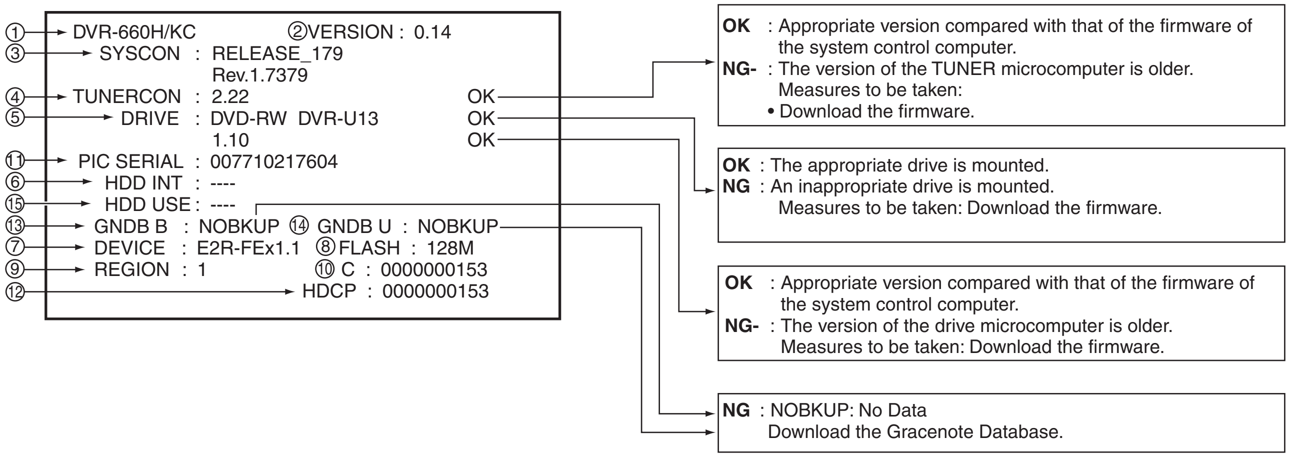
[How to enter] While the GUI screen is not displayed, press the ESC then DISP keys.

How to enter and change subscreens of the first screen: While the first screen is displayed, press the DIG/ANA key repeatedly until your desired subscreen is displayed. The subscreens change cyclically.

[How to quit] Press the ESC key.

[Description]

(1) First screen



```
DVR-660H/KC            ②VERSION : 0.14
     SYSCON  :  RELEASE_179
                Rev.1.7379
TUNERCON     :  2.22                    OK
       DRIVE :  DVD-RW  DVR-U13         OK
                1.10                    OK
 PIC SERIAL  :  007710217604
    HDD INT  :  ----
    HDD USE  :  ----
  GNDB B  :  NOBKUP ⑭ GNDB U  :  NOBKUP
  DEVICE  :  E2R-FEx1.1 ⑧FLASH  :  128M
  REGION  :  1          ⑩ C  :  0000000153
                         HDCP  :  0000000153
```

OK : Appropriate version compared with that of the firmware of the system control computer.
NG- : The version of the TUNER microcomputer is older.
Measures to be taken:
- Download the firmware.

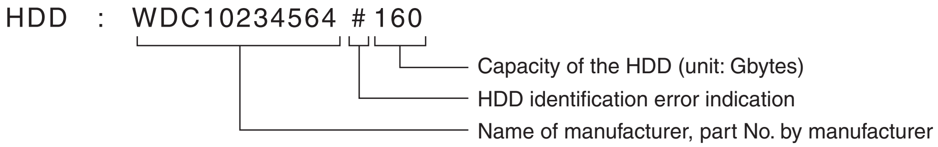
OK : The appropriate drive is mounted.
NG : An inappropriate drive is mounted.
Measures to be taken: Download the firmware.

OK : Appropriate version compared with that of the firmware of the system control computer.
NG- : The version of the drive microcomputer is older.
Measures to be taken: Download the firmware.

NG : NOBKUP: No Data
Download the Gracenote Database.

① Model name/destination
② Version of the recorder software
③ Revision No. of the system-control computer software
④ Version No. of the tuner microcomputer
Result of the combination ckeck with system u-com
⑤ Information on the built-in drive
(Model name, version No., model type)
⑥ Physical capacity of the HDD
⑦ DEVICE information (EMMA type, ES No.)
⑧ FLASH ROM information
⑨ Region No.
⑩ CPRM information (CPRM key No.)
⑪ PICUP SERIAL No.
⑫ HDCP information (HDMI authentication key)
Same number as that for CPRM.
⑬ Gracenote Database information
⑭ Gracenote Database Update information
⑮ Operating capacity of the HDD

- **Details on HDD data are described below:**


HDD : WDC10234564 #160
Capacity of the HDD (unit: Gbytes)
HDD identification error indication
Name of manufacturer, part No. by manufacturer

If any abnormality exists in HDD connection, the indications shown in Table 1 below are displayed.

Table 1: HDD recognition status represented by the HDD data display

HDD identification conditions	Example of HDD data to be displayed	Remarks
Failure in physical identification of HDD (no connection, defective HDD, interface error)	Blank space	• Check the connection to the SATA connector. • Replace the SATA flexible cable and connector. • Replace the HDD. • Replace the resistor in the SATA communication line.
Physical identification of HDD possible, but not identified (CPRM ID is not input.)	WDC 10234564 # 160	• Input the CPRM ID.
Physical identification of HDD possible, HDD identified, but failure in logical formatting	WDC 10234564 ! 160	"!" represents an HDD-recognition error. • Initialize the HDD or erase all titles.
Physical identification of HDD possible, HDD identified, and correct logical formatting (HDD correctly identified)	WDC 10234564 160	

If an error indication in the HDD data does not disappear even after the above measures were taken, refer to another sheet of "HDD Service Mode."

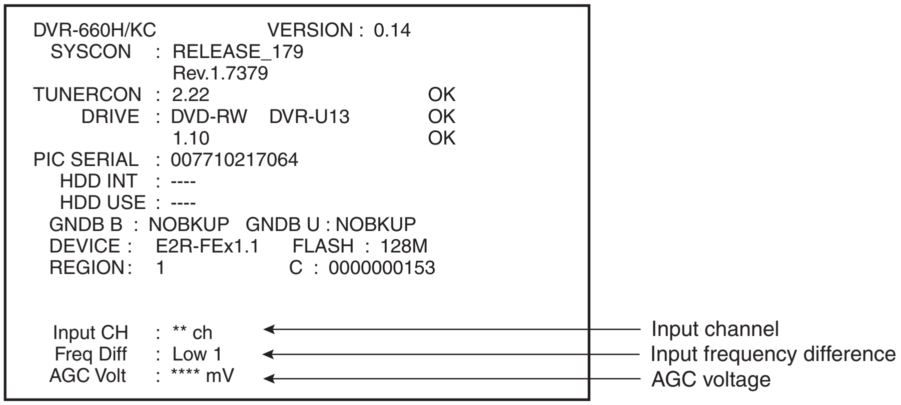
[1] Simple Diagnosis of the RF Level (Subscreen 1)

[Purposes] To check the RF signal of the U/V tuner by checking the input frequency difference and AGC voltage in this debug mode

[How to enter] While the User Setting display is displayed, press the ESC, DISP, then DIG/ANA keys, in that order.

[How to quit] Press the ESC key.

[Description]



```
DVR-660H/KC              VERSION :  0.14
  SYSCON    :  RELEASE_179
               Rev.1.7379
TUNERCON    :  2.22                      OK
     DRIVE  :  DVD-RW   DVR-U13          OK
               1.10                      OK
PIC SERIAL  :  007710217064
   HDD INT  :  ----
   HDD USE  :  ----
 GNDB B  :  NOBKUP   GNDB U : NOBKUP
 DEVICE :   E2R-FEx1.1    FLASH  :  128M
 REGION :   1             C  :  0000000153


 Input CH   :  ** ch
 Freq Diff  :  Low 1
 AGC Volt   :  **** mV
```

Input channel
Input frequency difference
AGC voltage

Subscreen 1

1) Frequency Difference (Freq Diff)

How much tuning is off is monitored, as shown below:

Input Frequency		Display
Faraway		High 7
High (within 200kHz)		High 1~5
Just Tune		Center
Low	within 200kHz	Low 1~5
	over 200kHz	Low 7

2) AGC voltage (AGC Volt)

The gain controlled by the tuner is monitored to infer the input electric field intensity.
(The accuracy of inference differs depending on the product.)

	Field Intensity	**AGC VOL**
Intense field area (Clear image)	70 dBμ or more	3300 mV or more
Less intense field area (Noise may be generated.)	50 dBμ or more 70 dBμ or less	3100 - 3300 mV
Weak field area (Much noise. EPG/VPS/PDC sometimes cannot be obtained.)	30 dBμ or more 50 dBμ or less	2600 - 3100 mV
Very weak field area (Image damaged. EPG/VPS/PDC cannot be obtained.)	30 dBμ or less	2600 mV or less (It is unable to discriminate.)

Tips:

For good reception, the field intensity must be 50 dBμ or more (AGC Volt 3100 mV or more).
For accurate measurement, use a field intensity meter.

[2] Simple Error Rate Measurement (Subscreen 2)

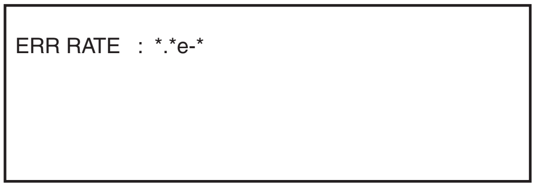
[How to enter]

- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key twice, in that order.
- While subscreen 1 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Measurement procedures]

① Display subscreen 2.
② Load the Test disc (GGV1025).
③ Judge the results of the error rate measurement by referring to Table 1.



ERR RATE : *.*e-*

Subscreen 2

[Tips]

During VR mode playback, the average value of the past 10 VOBUs is displayed. During DVD-Video or Video mode playback, the average value of the past 256 sectors is displayed.
During VR mode playback, the speed ratio of the drive (/: normal, no indication: double speed) is also displayed.

Table 1: Thresholds when determining OK or Error

Disc type	**Recording mode**	**Finalized or not finalized**	**Reference value**
DVD-VIDEO	-	-	8.0×10^{-4}
DVD-R	Video mode	Finalized	3.3×10^{-3}
		Not finalized	3.3×10^{-3}
DVD-RW	Video mode	Finalized	3.3×10^{-3}
		Not finalized	3.3×10^{-3}

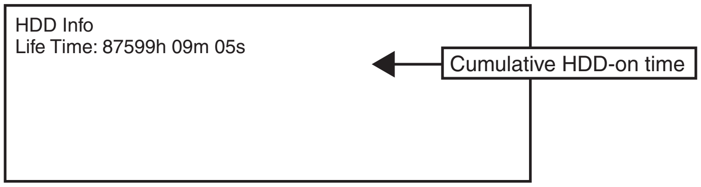
[3] HDD Information (Subscreen 3)

[How to enter]

- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key three times, in that order.
- While subscreen 2 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Mode description]



HDD Info
Life Time: 87599h 09m 05s

Subscreen 3

[Tips]

- **How the data on cumulative HDD-on time are processed in memory**

  Storage place:
  FLASH ROM

  Timing of referring to the data on cumulative HDD-on time:
  When the power is turned on, fails, the FLASH ROM is referred to.

  Timing of updating the data on cumulative HDD-on time:
  While the HDD is on, the data on cumulative HDD-on time in the RAM is updated every 3 seconds, and every time updating is executed the data are stored in the Backup SRAM. When the power is turned off, the data are stored in the FLASH ROM.

- **How to clear the data on cumulative HDD-on time**

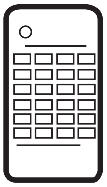
  FLASH ROM:
  When the HDD Identification Setting is performed, the data on cumulative HDD-on time are automatically cleared. The HDD Identification Setting is automatically performed when the CPRM setting is performed on the CPRM setting screen (to display the CPRM setting screen, press the ESC then the STEREO keys).

  Notes:
  - The data on cumulative HDD-on time are not cleared when resetting to factory-preset values is performed.
  - The data on cumulative HDD-on time are not cleared when the system-control computer software is downloaded.

[4] OSD Filter Setting (Subscreen 4)

[Purpose] Depending on the monitor used, the character flicker on the OSD may stand out.
If a system, such as character flicker, appears on the monitor, select the filter response.

[Tools to be used]



Remote control unit for servicing
(GGF1381)

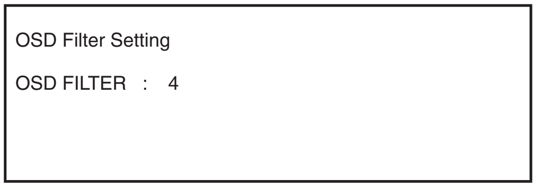
[How to enter]

- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key four times, in that order.
- While subscreen 3 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Setting procedures]

① Display subscreen 4.
② Select the setting from the key operation table.



OSD Filter Setting

OSD FILTER : 4

Subscreen 4

[Tips]

As the setting value becomes greater, jitter is reduced on a CRT display. However, as lines for characters appear thick, complex characters may become difficult to read. On the contrary, as the setting value becomes smaller, jitter increases on a CRT display. However, as lines for characters become sharper, complex characters become more legible.

Note: Use the remote control unit for servicing.
Note: A new setting becomes active as soon as it is made. As a new setting is stored in nonvolatile memory, it will be retrieved when the unit it turned on the next time.
Note: After the factory-preset values are downloaded, the setting value for the OSD Filter will be the default value (4).

[(Table 2) Key operation of OSD Filter setting]

Key	Operation	Setting value	Remarks
[Rev x 3], [SPEED+] [x 3 Fwd], [SPEED-]	Changing the setting value for the OSD Filter	0 - 4 (Default value: 4)	[Rev x 3], [SPEED+] : The setting value increases by 1. [x 3 Fwd], [SPEED-] : The setting value decreases by 1.
[CLEAR]	The setting value is reset to default.	–	
[ESC]	To exit the OSD Filter Setting and clear the screen (Appears the tuner screen.)	–	–

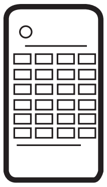
6.2 ATA/ATAPI DEBUG SCREEN (SECOND SCREEN)

[Purposes]

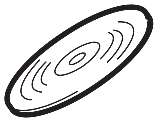
To be used as a rough guide to judge whether the pickup unit is all right or not

- Dirt on the pickup lens
- Degradation of the laser diodes for reading CDs and reading/writing to/from DVDs

[Tools to be used]



Remote control unit for servicing
(GGF1381)



Aluminum-coated test disc
(GGV1025)

[How to enter]

- While the User Operation display is displayed, press the ESC, DISP, then 2 keys, in that order.
- While any subscreen of the second screen is displayed, press the DIG/ANA key repeatedly.
  The subscreens change cyclically.

[How to quit] Press the ESC key.

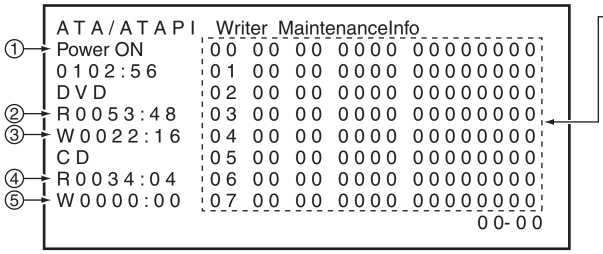
[1] Writer Maintenance Information of ATA/ATAPI DEBUG OSD (Subscreen 3)

[How to enter]

- While the User Operation screen is displayed, press the ESC, DISP then 2 keys, then the DIG/ANA key twice, in that order.

[How to quit] Press the ESC key.

[Procedures] Update the display by pressing the SEARCH key while subscreen 3 is displayed.



```
ATA/ATAPI   Writer MaintenanceInfo
Power ON    00 00 00 0000 00000000
0102:56     01 00 00 0000 00000000
DVD         02 00 00 0000 00000000
R0053:48    03 00 00 0000 00000000
W0022:16    04 00 00 0000 00000000
CD          05 00 00 0000 00000000
R0034:04    06 00 00 0000 00000000
W0000:00    07 00 00 0000 00000000
                               00-00
```

Error log for the Writer
(Not for Service)

① Power-on time/cumulative power-on time
② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
③ Duration of emission of the LD for DVD-W/DVD while writing
④ Duration of emission of the LD for CD-R/CD while reading
⑤ Duration of emission of the LD for CD-W/CD while writing
(This function is not used for this model.)

② If the total hours of duration of emission of the laser diode (LD) for DVDs while reading ② and that of emission of the LD for DVDs while writing ③ exceed 4,700 hours, the LDs may be degraded.
Perform an LD degradation judgment, using subscreen 4.

[Tips]

MTTF hours for each LD
DVD: 4,700 hours
CD: 11,000 hours

The ATA/ATAPI Writer Maintenance Info is obtained each time the power is turned on. Thereafter, the data on the subscreen is updated each time the SEARCH key is pressed (the updating command is sent) while this subscreen is displayed. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.

[Note on lighting time data for each LD]

Since data on lighting time of each laser diode (LD) are stored in the flash ROM on the MAIN Assy, after the MAIN Assy is replaced, the data will be cleared. However, after the LOADER Assy is replaced, data on lighting time of each LD will be retained in the MAIN Assy. Therefore, before either the MAIN Assy or LOADER Assy is to be replaced, it is recommended that you write down the lighting time data.

[2] LD Degration Judgment of ATA/ATAPI DEBUG OSD (Subscreen 4)

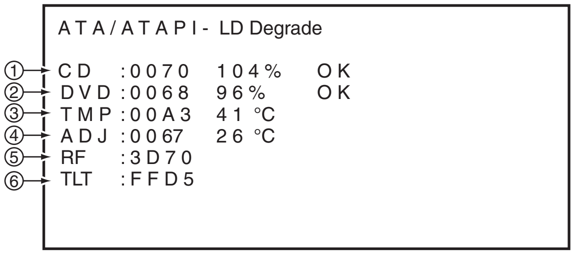
[How to enter] • While the User Operation screen is displayed, press the ESC, DISP then 2 keys, then the DIG/ANA key three times, in that order.

[How to quit] Press the ESC key.

[Notes]

- For correct measurement of items ① to ④ indicated in the display below, leave the unit at room temperature (25˚C) for a while before turning it on, and do not load a disc.
- For RF measurement (item ⑤), it is recommended to use the Test disc (GGV1025).
  As the RF level differs depending on the characteristics of the pickup from product to product, it cannot be used for judging degradation of the LD. Use the RF level as a rough guide to know the difference between before and after lens cleaning.

[Procedures] To update the value for each item, press the SEARCH key while subscreen 4 is displayed.
For details on each item and the conditions of updating the values, see Table 2 below.



```
ATA/ATAPI- LD Degrade

CD  :0070  104%  OK
DVD :0068  96%   OK
TMP :00A3  41 °C
ADJ :0067  26 °C
RF  :3D70
TLT :FFD5
```

Table 2: Description of each item and conditions for updating data

No.	Item	Description	Conditions for updating by pressing the SEARCH key
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of disc medium (GGV1025)
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is diplayed when the writer is not adjusted.)	No condition

If the results of degradation of the LDs for CDs or DVDs are NG, replace the drive.

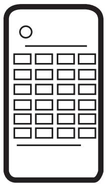
6.3 VR-RECORDING-RELATED ERROR LOGS (FOURTH SCREEN)

[Purposes]

To roughly determine in which category shown below a symptom that is difficult to reproduce belongs.
For details on the categories of error logs displayed, see "Table 1: Description of VR-recording-related errors."

- Errors related to the MPEG Encoder
- Errors related to the drive system
- Errors related to copying
- Errors related to others
- Errors related to the HDD

[Tool to be used]



Remote control unit for servicing
(GGF1381)

[How to enter]

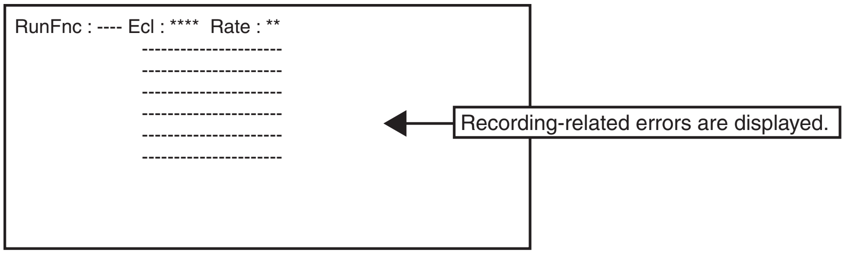
- While the User Operation display is displayed, press the ESC, DISP, then 4 keys, in that order.
- While any subscreen of the fourth screen is displayed, press the DIG/ANA key repeatedly.
  The subscreens change cyclically.

[How to quit] Press the ESC key.

[Description of each subscreen]

(1) VR-Recording-Related Error Logs (Subscreen 1)

- Errors related to recording are displayed on the lines "Rec Err:," as shown below.
  For details on errors, see "Table 1: Description of VR-recording-related errors."

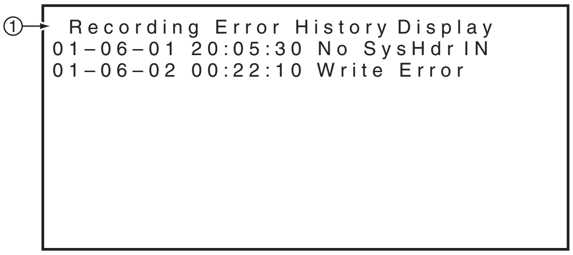


```
RunFnc : ---- Ecl : ****  Rate : **
                 ---------------------
                 ---------------------
                 ---------------------
                 ---------------------
                 ---------------------
                 ---------------------
```

Recording-related errors are displayed.

(2) Subscreen 2 and 3 (These subscreens are not for service use.)

(3) VR-Recording-Related Error Logs (Subscreen 4)



```
  Recording Error History Display
01–06–01 20:05:30 No SysHdr IN
01–06–02 00:22:10 Write Error
```

① There are two error-log screens, on which up to 9 logs per screen are displayed.
(generation time [year-month-day, hour:minute:second], error data in simplified description)

[Tips]

- The two error-log screens can be switched by pressing the SPEED+ or SPEED- key.
- For details on error messages, see Table 1 "Description of VR-recording-related errors".

(4) Subscreen 5 to 12 (These subscreens are not for service use.)

[1] Description of VR-Recording-Related Errors

Any error message marked with * is displayed "RecErr : ---------" on the Subscreen 1 of the fourth screen.

● Error Related to MPEG Encoder

Error Message	Description	Cause
AVEnc Hang	AVEncoder failed	Defective engine or software-related problem
IN Encode *	Changes cannot be made in the process of encoding	
No SysHdr IN	System packet is not input periodically	Defective engine or software-related problem
Stm Start NG	Failure to start encoding (reasons not clear)	Defective engine or software-related problem
Stream NG	Inappropriate input stream data	Defective engine or software-related problem
Strm Start NG	Timeout waiting for system packet input at the beginning	Defective engine or software-related problem

● Error Related to Drive System

In a case of an error in the drive system, scratches or dirt on a disc, or a problem of the drive itself (dirty pickup) may be suspected.

Error Message	Description	Cause
Bdr Cls NG	Close Border failed	Defective disc
Bdr Opn NG	Open Border failed	Defective disc
BUF Overflow	Overflow of the Stream Buffer	Software-related problem
CLS Rzon Fail	Video Mode Close Rzone failure	Defective disc
Drive Hang	The Drive is hung up.	Defective disc or drive
Drv Err	General error of the drive	Defective disc or drive
Drv Hard Err	Abnormality in the drive hardware or firmware	Defective disc or drive
Drv TimeOut	Timeout waiting for drive operation	Defective disc or drive
Fail Repair	Repair failed	
Format NG	Format failed	Defective disc
May Be V mode	Although TMP_VMGI is not written, it may be Video Mode disc.	
Mech No Res	No response from the mechanical-control computer	Defective disc or drive
MKB Invalid	MKB reading error	Defective disc
NWA Exhaust	NWA surpassed and impossible to use	Defective disc
OPC NG	OPC failed	Defective disc
PCA Full	PCA has been used up.	
Read Err	Reading failed, ECC failed, etc.	Defective disc
ReadOnly DISC *	Because some data are invalid, data cannot be written	
RMA Full	RMA has been used up.	
Rzn Cls NG	Close RZone failed	Defective disc
Rzn Rpr NG	Repair RZone failed	Defective disc
Rzn Rsv NG	Reserve RZone failed	Defective disc
TMP-VMG WrErr	Video Mode TMP VMGI Write Error	Defective disc
VTSI_B Wr Err	Video Mode VTSI BUP Write Error	Defective disc
VTSI_B2 Wr Err	Video Mode VTSI BUP Write Error (After Layer Change)	Defective disc
VTSI Wr Err	Video Mode VTSI Write Error	Defective disc
VTSI2 Wr Err	Video Mode VTSI Write Error (After Layer Change)	Defective disc
Write Err	The Drive failed to write and could not be recovered.	Defective disc
May Be PVR	May be +VR disc, but no RSAT	
V Final fail	Abnormal process occurred when finalizing Video mode	Software-related problem
DLVR trace NG	Close Rzone failed at dual layer disc	Defective disc

RSAT : Reserved Space Allocation Table

● Error Related to Dubbing

Error Message	Description	Cause
H2D CP SomeNG	Other NG HDD -> DVD copy	
Mem get NG	Video Mode Copy Memory has not ensured.	
Strm TransfNG	Video Mode Copy Stream Transfer NG	
Tracon Trn NG	Video Mode Copy Tracon transfer has not been completed.	
VC Cell Max	Maximum number for Video Mode copy Cells exceeded	
VC CopyCancel	Video Mode Copy Copy Cancel	
VC FlushC NG	Video Mode Copy Flush Cache NG	
VC HDD C Err	Obtaining Video Mode Copy HDD Cell information failed	
VC HDD Inf NG	No information on Video Mode Copy HDD	
VC HDD Info NG	Format failed	
VC Idling NG	Video Mode Copy idling NG	
VC Pck Anl NG	Analizing Video Mode Copy Pack failed	

● Error Related to Dubbing (Continued)

Error Message	Description	Cause
VC Transf Stp	Video Mode Copy Transfer Stop	
VC TSO BLK NG	Video Mode Copy TSO Block transfer has not been completed.	
VC VOBU SizeE	Video Mode Copy VOBU Size NG	
V Rsv RzoneNG	Video Mode Copy Reserve Rzone failed	Defective disc
V2H APP FL NG	VR → HDD APP FLG is OFF	
V2H Aud Ch NG	VR → HDD Audio Channel NG	
V2H Aud Md NG	VR → HDD Audio Mode NG	
V2H Aud Stm N	VR → HDD Audio Stream number NG	
V2H SRC Prot	VR → HDD copy prohibited material	
V2H Unknown	VR → HDD other NG	
V2H VOBU TMNG	VR → HDD Play back time of each VOBU is different	
V2H V Reso NG	VR → HDD Video resolution NG	
H2D CP NoSpac	HDD → DVD insufficient free space for copy	
H2D TO HDDRD	HDD → DVD (VR) TimeOut at HDD playing side	
H2D TO SPRO	HDD → DVD (VR) TimeOut at internal processing	
H2D TO DVDWR	HDD → DVD (VR) TimeOut at HDD recording side	
C2H LOG (XXX)	HDD CAM → HDD operation log (XXX is a process code.)	
C2H ERR (XXX)	HDD CAM → HDD NG (XXX is a process code.)	

● Other Errors

Error Message	Description	Cause
Abort *	Cancellation	
Already open	Extension file is already opened.	
BK BATT Down	Backup RAM data has been erased.	
BK FSYS Dirty	Backup RAM data has not been written on the File Sys.	
BUG	Some bugs	
BusReset Done	Bus Reset has been executed.	
Cell Close NG	Cell Close NG	
CPRM IC NG	Inappropriate CPRM IC	Defective engine
Dir Depth Err	Tree of Directory is too deep.	
Disc Full	No further data can be written because the disc is full.	
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure	
DRAM NG	Abnormality in access to the Work DRAM	
Drive Destroy	The drive has crashed.	Defective engine, drive, or HDD
EncModul Hang	Encoder routine is hung up.	Defective engine or software-related problem
F Alrdy Exst	Extension file is already exist.	
File cancel	Extension file is canceled.	
FileNot Exist	Extension file is not exist.	
Format Excec	Formatting has been executed.	
Invalid Disc *	The disc cannot be recognized.	Problem in the logical structure of the disc
Invalid Param *	Invalid parameter	
Invalid TMVMG	Invalid TMP_VMGI content	Problem in the logical structure of the disc
Invalid UDF *	Invalid UDF content	Problem in the logical structure of the disc
Invalid VMG *	Invalid VMG content	Problem in the logical structure of the disc
Invalid VTSI	VTSI information of +VR is unusual.	Problem in the logical structure of the disc
Irr Action *	Incorrect action	
MKB REVOKED	Error in gaining data	
Limit Over *	Standard maximum limit exceeded	
No More Info *	No more space in the internal work-management area	Software-related problem
No Permission *	No permission to write to the disc	
No Video	No video input (not locked)	
Now Busy *	In the process of the emergency processing	
NV Pck DMA Er	Inappropriate NaviPack DMA	
NV Pck MK Err	Error in creating NaviPack	
Ourob Strm NG	Inappropriate stream data to the Ouroboros input	
Over Heat	Abnormal temperatute	
PARAM NO ACCP	Recording parameter is not matched.	
Process Over	Process is overfull.	
Protect Src *	Source to be recorded is copy-protected.	
Rec Pause *	No operation permitted during recording pause	
Relocation Do	VR-recording data was relocated	

● Other Errors (continued)

Error Message	Description	Cause
Repair Excec	Repairing has been executed.	
Something *	Undetermined error	
SRAM NG	Abnormality in access to the backup work SRAM	
Status NG *	Abnormality in change of statuses	
SW PVR	Switch to +VR playback process	
SW Vpb mode *	Switching to video playback routine is required.	
SW Vrec mode *	Switching to video recording routine is required.	
Unmatch Stamp *	Impossible to modify because of nonmatching time stamp	Problem in the logical structure of the disc
VBR-SRAM NG	Abnormality in VBR SRAM	
V Categ ID NG	Inappropriate Category ID	
V Cate Inf NG	Inappropriate Category information	
V Ext MAX Ovr	Count Max exceeded	
V ExtToo Big	The extension file is too large.	
V Ext TY NG	Type NG	
Virgin DISC	Virgin Disc	
VOBU Info NG	Inappropriate VOBU information	
WaterMark Det	Watermark detected	
WM Cracked	WM Cracked	
Param Short	Editing Error (Clear A-B)	
Invalid VRMI	Information of +VR is NG. (VRMI)	Problem in the logical structure of the disc
Heap Mem NG	Failure in securing the necessary amount of memory	Soft-related problem
Heap Mem RETY	Reattempting to secure the necessary amount of memory	

● Error Related to HDD

Error Message	Description	Cause
Do nothing	Do nothing for demand.	
ESFSYS CORUPT	easyfsys error	
ESFSYS INIT	easyfsys initializing	
HDD Buff High	High-level process executed for the HDD Buffer	
HDD DEF DONE	HDD deflag finished	
HDD DEF ERR	HDD deflag error	
HDD Destroy	HDD is not recognized on the bus.	Defective HDD, engine
HDD INFO BAD	Incorrect HDD Management Data	Defective HDD or software-related problem
HDD Initialize	HDD initialized	
HDD IRRG POFF	Abnormal power off	
HDD MBR NG	Inconsistent MBR data	Defective HDD
HDDReset Done	HDD Reset executed	
HDD ROMSUM NG	Rom-code check sum NG	
HDD SIG NG	Inconsistent HDD Management Data Magic	Defective HDD
HDD SMART NG	Inappropriate HDD SMART	Defective HDD
HDD Trans Err	DMA error in HDD copy transfer	
HDD unauthor	Inconsistent HDD serial No.	
HDD Zero WR	MBR was written	
Task No Activ	Task has not been activated.	
TT Rec Over	Title recording time full	
HDD WRONG TGT	Invalid HDD target No. is directed.	
extHDD Ignore	External HDD is dismounted.	
HDD PFile NG	Program file installed in HDD is NG.	
HDD DEL TT	Delete the title by HDD recovery.	
HDD DEL PL	Delete the dubbing list by HDD recovery.	
HDD DEL OC TT	Delete the title moving on the way inside HDD	
HDD Aging NG	Error generated in HDD Test mode	
HDD TFD INIT	Gracenote Database deleted	
HDD DWNLD NG	Error generated while Gracenote Database was being downloaded	
HDD TFD WR NG	File development of Gracenote Database failed.	
HDD TFD CL NG	File deletion of Gracenote Database failed.	
HDD TFD NON	Gracenote Database not downloaded	
HDD CDDB NG	Problem in Gracenote Database	
GN API NG	File operation of Gracenote Database failed.	

● No Error

Error Message	Description	
Non Err *	Normal	

Abbreviations:

ECC = 4 byte Code for Error Correction
UDF = Universal Disc Format
PCA = Power Calibration Area
OPC = Optical Power Control
NWA = Next Writable Address

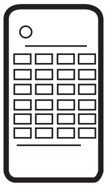
VMG = Video Manager
RMA = Recording Management Area
MKB = Media Key Block
TMP_VMGI = Temporary Video Manager Information
Border = from Lead-in to Lead-out
RSAT = Reserved Space Allocation Table

6.4 VR-PLAYBACK-RELATED ERROR LOGS (FIFTH SCREEN)

[Purposes]

It can be inferred that an operation that caused an error in the drive was performed or that a failure occurred in the drive if any of the error logs shown in "Table 2: Description of VR-playback-related errors" is recorded on this screen.

[Tool to be used]



Remote control unit for servicing
(GGF1381)

[How to enter]

- While the User Operation display is displayed, press the ESC, DISP, then 5 keys, in that order.
- While any subscreen of the fifth screen is displayed, press the DIG/ANA key repeatedly. The subscreens change cyclically.

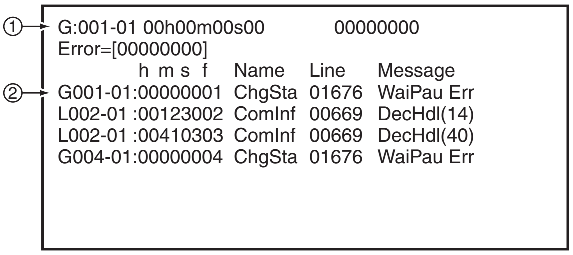
[How to quit] Press the ESC key.

[Description of each subscreen]

(1) Subscreen 1 (This subscreen is not for service use.)

(2) VR-Playback Error Logs (Subscreen 2)

- For details on error messages, see Table 2 "Description of VR-playback-related errors".
- If a VR-playback-related error is generated, a problem in data reading from the disc may be suspected. (The possibility of a problem on the drive side is high.)



```
① G:001-01 00h00m00s00          00000000
  Error=[00000000]
            h m s  f   Name    Line    Message
② G001-01:00000001  ChgSta  01676   WaiPau Err
  L002-01 :00123002  ComInf  00669   DecHdl(14)
  L002-01 :00410303  ComInf  00669   DecHdl(40)
  G004-01:00000004  ChgSta  01676   WaiPau Err
```

① Information on display position
Original / Play list (G/L), Title No., Chapter No. [X:XXX-XX]
Display time (hour, minute, second & frame) [XXhXXmXXsXX]
Logic address for playback (ID) [XXXXXXXX]
Number of entries to error log [XXXXXXXX]

② Error message log
Original / Play list (G/L), Title No., Time of occurrence (min & sec) [XXX:XXXX]
Location of occurrence (this data is used for development), Name: Name of module where the error occurred, Line: Number of line where error occurred
Playback-system errors that occurred in 13 times of playback in past [XXX:XXXXXXX]
* For details of error information, refer to the Appendix Table 1.
* If information on errors which occurred on days earlier than the current day is contained on the screen, the information that follows the information which are displayed with "^" between “Time of occurrence”, “Name”, “Line” and “Message” indicates the errors that occurred on the current day.

[1] Description of VR-Playback-Related Errors

Error Message	Details of error
AudioPB Err	Audio initialization error
WaiPau Err	Pause was disabled though tried. (Pause-wait timeout)
CC_OS_ERR	CC output processing error
Tr:NullBlk	No valid data in the first block
Tr:NaviErr	Navigation pack error
Tr:ReadErr	Data read error
Dec:PicDisp	Not played up to final PTS
Dec:Size	horizontal/vertical_size in sequence header is 0 or above 720 × 576.
Dec:PicTyp	picture_coding_type in picture header is neither of the I, P, nor B picture type.
Dec:Struct	picture_structure in picture coding extension is neither top/bottom_field or frame picture.
Dec:Syntax	Header size is insufficient or does not match with markerbit.
Dec:NoHead	No picture header exists between picture data.
Dec:SqErr	Detected sequence_error_code.
Dec:Refrenc	In Field structure, top_field and bottom_field of temporal_reference in picture header does not match.
Dec:Profile	profile_and_level_indication in sequence extension header is exceeding MP@ML.
DecHdl(**)	Decoder command execution timeout. (**) is replaced by No. of command which was to be executed. The Nos. and names of commands are as follows. /* DECODER system command */ 0 HANDLER_DECODER_INIT, 1 HANDLER_DECODER_INIT_STARTUP, 2 HANDLER_DECODER_INIT_PLAY, 3 HANDLER_DECODER_INIT_RTR_PLAY, 4 HANDLER_DECODER_INIT_AUDIO, 5 HANDLER_DECODER_EXIT, 6 HANDLER_DECODER_BLACK_BACK, 7 HANDLER_DECODER_SET_DISP_FMT, 8 HANDLER_DECODER_SET_ASPECT_MODE, 9 HANDLER_DECODER_DISP_BITRATE, /* DVD command */ 10 HANDLER_DEC_DVD_VIDEO_PLAY, 11 HANDLER_DEC_DVD_VIDEO_PLAY_LIST, 12 HANDLER_DEC_DVD_AUDIO_PLAY, 13 HANDLER_DEC_DVD_STOP, 14 HANDLER_DEC_DVD_PAUSE, 15 HANDLER_DEC_DVD_PAUSE_STILL_MODE, 16 HANDLER_DEC_DVD_STEP, 17 HANDLER_DEC_DVD_REWSTEP, 18 HANDLER_DEC_DVD_PAUSE_OFF, 19 HANDLER_DEC_DVD_FF, 20 HANDLER_DEC_DVD_REW, 21 HANDLER_DEC_DVD_SLOW, 22 HANDLER_DEC_DVD_REWSLOW, 23 HANDLER_DEC_DVD_SCAN_OFF, 24 HANDLER_DEC_DVD_SLOW_OFF, 25 HANDLER_DEC_DVD_REWSLOW_OFF, 26 HANDLER_DEC_DVD_REWSKIP_TO_REWSLOW, 27 HANDLER_DEC_DVD_REWPAUSE, 28 HANDLER_DEC_DVD_PLAY_LIST_END_CHECK, 29 HANDLER_DEC_DVD_SET_CAPTION_SW_OFF, 30 HANDLER_DEC_DVD_SET_CAPTION_SW_ON, 31 HANDLER_DEC_DVD_REWPAUSE_TO_REWSLOW,

Error Message	Details of error
	32 HANDLER_DEC_DVD_REGIST_TRICK_CALLBACK, 33 HANDLER_DEC_DVD_TRICK_DATA_END, 34 HANDLER_DEC_DVD_AUDIO_STOP, /* management information */ 35 HANDLER_DEC_INIT_NV_PCK, 36 HANDLER_DEC_INIT_RDI_PCK, 37 HANDLER_DEC_READ_NV_PCK_POINT, 38 HANDLER_DEC_READ_RDI_PCK_POINT, 39 HANDLER_DEC_READ_STC, 40 HANDLER_DEC_READ_PTS, 41 HANDLER_DEC_HLI_ENABLE, 42 HANDLER_DEC_COMMAND_PLAY, 43 HANDLER_DEC_COMMAND_PAUSE, 44 HANDLER_DEC_COMMAND_RSLOW_VOBU_STOP, 45 HANDLER_DEC_INIT_VIDEO_MODE, 46 HANDLER_DEC_SET_VIDEO_MODE, 47 HANDLER_DEC_CHECK_VIDEO_OUTPUT, 48 HANDLER_DEC_CHECK_VIDEO_ERROR, 49 HANDLER_DEC_DISPLAY_SUBPICTURE, 50 HANDLER_DEC_SET_SUBPICTURE_PALLET, 51 HANDLER_DEC_IPB_REVERSE, 52 HANDLER_DEC_SET_AUDIO_SYNC, 53 HANDLER_DEC_COMPULSION_OUTPUT_SUBPICTURE, 54 HANDLER_DEC_CLEAR_LAST_NV_PCK_POINT, 55 HANDLER_DEC_CLEAR_LAST_RDI_PCK_POINT, 56 HANDLER_DEC_GET_PICTURE_PARAM, 57 HANDLER_DEC_CHECK_BUFFER_EMPTY, 58 HANDLER_DEC_CHECK_TRICK_END, 59 HANDLER_DEC_READ_VCD_PTS, /* still picture */ 60 HANDLER_DEC_DVD_STILL_NOTIFY, 61 HANDLER_DEC_DVD_STILL_PLAY, 62 HANDLER_DEC_DVD_STILL_FF, 63 HANDLER_DEC_DVD_STILL_FF_OFF, 64 HANDLER_DEC_DVD_STILL_SLOW, 65 HANDLER_DEC_DVD_STILL_SLOW_OFF, 66 HANDLER_DEC_DVD_STILL_PAUSE, 67 HANDLER_DEC_DVD_STILL_PAUSE_OFF, 68 HANDLER_DEC_DVD_STILL_DATA, 69 HANDLER_DEC_DVD_STILL_GET_COUNT, 70 HANDLER_DEC_DVD_RDI_NOTIFY, /* closed caption */ 71 HANDLER_DEC_CAPTION_NOTIFY, 72 HANDLER_DEC_CAPTION_BUFFER_RESET, 73 HANDLER_DEC_CAPTION_SET_INPUT_USER_DATA, 74 HANDLER_DEC_CAPTION_SET_INPUT_FRAME_DATA, 75 HANDLER_DEC_CAPTION_SEND_FRAME_DATA, 76 HANDLER_DEC_FRAME_CHANGE_NOTIFY

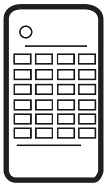
6.5 DV SERVICE MODE

[1] DV Debug

[Purpose]

To check whether communication between a DV device and the unit is normal when a DV device is connected

[Tools to be used]



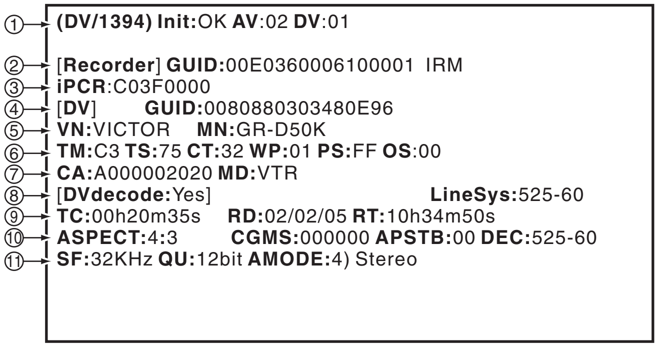
Remote control unit for servicing
(GGF1381)

- DV device
- DV cable

[How to enter] Press the ESC , DISP then 3 keys, in that order.

[How to quit] Press the ESC key.

[Mode description]



① **(DV/1394) Init:**OK **AV**:02 **DV**:01

② [**Recorder**] **GUID:**00E0360006100001 IRM
③ **iPCR**:C03F0000
④ [**DV**] **GUID:**0080880303480E96
⑤ **VN:**VICTOR **MN:**GR-D50K
⑥ **TM:**C3 **TS:**75 **CT:**32 **WP:**01 **PS:**FF **OS**:00
⑦ **CA:**A000002020 **MD:**VTR
⑧ [**DVdecode:**Yes] **LineSys:**525-60
⑨ **TC:**00h20m35s **RD:**02/02/05 **RT:**10h34m50s
⑩ **ASPECT:**4:3 **CGMS:**000000 **APSTB:**00 **DEC:**525-60
⑪ **SF:**32KHz **QU:**12bit **AMODE:**4) Stereo

Boldface alphanumerics	: Fixed indications
Nonboldface alphanumerics	: Variable indications

No.	Item	Description	Remarks
①	Init	Whether the initialization of 1394 LINK and DV decoder inside EMMA2RFEX has been completed (OK) or not (NG)	
	AV	Number of AV devices recognizing connection	Identification number of AV devices including D-VHS, Digital Tuner, etc other than DV devices.
	DV	Number of DV devices recognizing connection	If the number does not become 01 even if a DV device is connected, identification of that device fails.
②	GUID	GUID set in ConfigROM of the unit	GUID : Global Unique ID (Specific ID for DV devices) If the unit is ROOT (IRM), IRM is displayed at the side position of GUID display.

No.	Item	Description	Remarks
③	iPCR	iPCR value of the unit	
④	GUID	GUID set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. If the connected DV device is ROOT (IRM), IRM is displayed at the side position of GUID display.
⑤	VN	Vendor name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
	MN	Model name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the model name may not be set in ConfigROM.)
⑥	TM	Transport Mode data obtained from the DV device	Data are displayed only if one DV device is identified.
	TS	Transport State data obtained from the DV device	
	CT	Cassette Type data obtained from the DV device	
	WP	Write-protection data obtained from the DV device	
	PS	Power-state data obtained from the DV device	
	OS	Output signal mode data obtained from the DV device	
⑦	CA	Connect AV data obtained from the DV device	Data are displayed only if one DV device is identified.
	MD	DV device mode	Camera or VTR is displayed only if one DV device is identified.
⑧	[DVdecode:XXX]	Whether Yes (in the process of requesting DV input) or No is indicated in XXX	Normally, Yes is indicated only when CH is set to DV.
	LineSys	Input Line System setting	
⑨	TC	Time-code data of the DVdecode Stream, or response data of the Time Code command	Stream time-code data are obtained when the tape is played in forward direction. Otherwise, time-code data are obtained through an AV/C command.
	RD	Rec Date of DVdecode Stream	
	RT	Rec Time of DVdecode Stream	
⑩	ASPECT	Aspect Ratio of DVdecode Stream	
	CGMS	CGMS of DVdecode Stream (from left to right, CGMS data of bits 5-4: Audio ch 2, bits 3-2: Audio ch 1, and bits 1-0: Video)	*CGMS (Copy Generation Management System): The two-digit codes added to broadcast programs represent the following: 00: Copy freely, 10: Once copy, 11: Never copy
	APSTB	APS trigger bit of DVdecode stream	
	DEC	With/without DVdecode stream input	With input: Signal type (525-60, 625-50, 1125-60, 1250-50, or Invalid) is indicated, Without input: "No" is indicated.
⑪	SF	Sampling Frequency of DVdecode Stream	If SF is 44 kHz, it is considered that 44.1-kHz audio is input, and sound is muted on the unit.
	QU	QUANTIZATION of DVdecode Stream	
	AMODE	AUDIO MODE of DVdecode Stream	

[2] Simple Diagnosis of DV

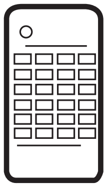
Symptoms		Location in the Debug Screen	Items to be Checked, and Conditions	Possible causes
No operation for DV input	1	DV ①	Check the Init indication: OK: Initialization of 1394 LINK and DV decoder inside EMMA2RFEX appropriately completed. NG: Initialization of 1394 LINK and DV decoder inside EMMA2RFEX has not been completed properly.	Defective IC1001(EMMA2RFEX)/ IC5103(1394PHY), improper connection between IC1001 / IC5103, defective soldering, defective power supply, etc.
	2	DV ①	Check the number of DV devices when one DV device is connected to the recorder: 01 : The connected DV device is correctly identified. Other than 01 : The connected DV device is not correctly identified.	Defective DV terminals, improper connection of the DV-terminal board, defective IC5103(1394PHY), defective cables, an IEEE 1394 device other than the DV device connected.
No picture nor sound for DV input	1	DV ⑧	Check of DV decoding when the recorder channel is set to DV: Yes: The recorder is in the process of a DV input operation No: The recorder is not executing a DV input operation	Defective IC1001(EMMA2RFEX), defective soldering, defective power supply, etc.
	2	DV ⑩	Check DEC: 525-60: An NTSC DV signal is input from the DV device. 625-50: A PAL DV signal is input from the DV device. No: No DV signal is input from the DV device.	Defective DV terminals, improper connection of the DV-terminal board, defective source device defective IC1001(EMMA2RFEX), IC5103(1394PHY) **Note:** As to a model having the Input Line System setting, if the setting and the actual input signal system do not match, no picture appears.
DV input recording impossible	1	DV ⑩	Check CGMS:	Recording cannot be performed for a copy-protected source.
No sound for DV input	1	DV ⑪	Check SF: 32 khz: An audio signal with 32-kHz sampling frequency is being input. 48 khz: An audio signal with 48-kHz sampling frequency is being input. 44 khz: An audio signal with 44.1-kHz sampling frequency is being input.	An audio signal with 44.1-kHz sampling frequency is muted.

6.6 HDMI SERVICE MODE

[Purposes]

To check the statuses of the connected HDMI devices.

[Tool to be used]



Remote control unit for servicing
(GGF1381)

- HDMI device
- HDMI cable

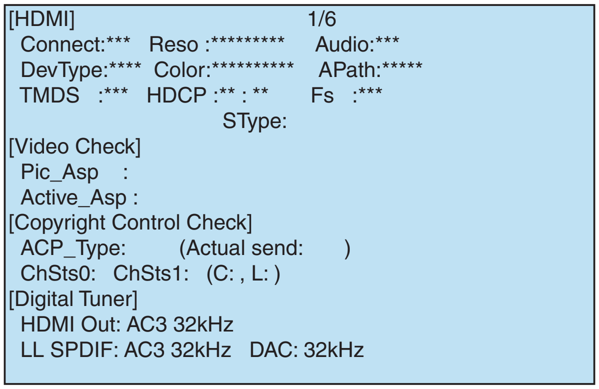
[How to enter] • Press the ESC, DISP then +10, +10 , 4 keys, in that order.

Note: Do not press any key on the remote control unit supplied with the unit or for servicing while the HDMI debug screen is displayed.

[How to quit] Press the ESC key.

[Description of the mode]

1. HDMI MAIN information screen (First screen)



```
00 [HDMI]                              1/6
01   Connect:***   Reso :*********     Audio:***
02   DevType:****  Color:**********    APath:*****
03   TMDS   :***   HDCP :** : **       Fs   :***
                              SType:
   [Video Check]
     Pic_Asp    :
     Active_Asp :
   [Copyright Control Check]
     ACP_Type:        (Actual send:       )
     ChSts0:  ChSts1:   (C: , L: )
   [Digital Tuner]
     HDMI Out: AC3 32kHz
     LL SPDIF: AC3 32kHz   DAC: 32kHz
```

(*1) [Tips]
Because all the data on connection and authentication are canceled once the function of the connected HDMI device is set to a position other than HDMI, all the debugging data in Table 1 are deleted.

Table 1: Description of the items on the HDMI main information screen

Line	Item	Description	Remark
1	Connect	Connection status of the HDMI device	See Table 2.
	Reso	Output resolution	See Table 3.
	Audio	HDMI audio output status	See Table 4.
2	DevType	Type of connected device	See Table 5.
	Color	Output color	See Table 6.
3	TMDS	TMDS (video stream) signal output status	See Table 7.
	HDCP	HDCP Authentication status	See Table 8.
	Fs	Output audio Fs	See Table 9.

Table 2: Connection status of the HDMI device

Indication	Description
ON	Connected
HtPlg	Not connected but Hot plug is ON.
OFF	Not connected

Table 3: Output resolution

Indication	Description
480i NTSC	720x480i NTSC
480p NTSC	720x480p NTSC
720p NTSC	1280x720p NTSC
1080i NTSC	1920x1080i NTSC
1080p NTSC	1920x1080p NTSC
576i PAL	720x576i PAL
576p PAL	720x576p PAL
720p PAL	1280x720p PAL
1080i PAL	1920x1080i PAL
1080p PAL	1920x1080p PAL
----------	TMDS Off

[Description of the Main screen] (Continued)

Table 4: HDMI audio output status

Indication	Description
OFF	Output: Off
ON	Output: On

When the unit is connected to DVI device (refer to Table 5), the Audio is not outputted.

Table 5: Type of the connected device

Indication	Description
------	Not connected
HDMI	It has been confirmed that an HDMI device supporting HDCP is connected.
DVI	It has been confirmed that a DVI device supporting HDCP is connected.

When the unit is connected to device with no HDCP support, this display is "HDMI-" or "DVI-".

Table 6: Output color

Indication	Description
YCbCr4:2:2	Component 12 bits (YCbCr4:2:2)
YCbCr4:4:4	Component (YCbCr4:4:4)
RGB(0-255)	RGB full range (0-255)
RGB(16-235)	RGB (16-235)
-----------	TMDS Off

Table 7: TMDS signal output status

Indication	Description
OFF	Output: Off
ON	Output: On

Table 8: HDCP

Left side : HDCP Authentication Status

Indication	Description
--	If an device supporting HDCP is connected, HDCP authentication is in progress.
OK	HDCP authentication succeeded.

Refer to this item only when HDMI or DVI is displayed for the item for the type of the connected device (Table 5).
If OK is not displayed although HDMI or DVI is displayed, it means that the HDCP authentication failed.

Right side : Check Revocation list

Indication	Description
--	Checking that the connected device (all downstream devices) is not registered to the Revocation list, or so.
OK	The connected device (all downstream devices) is not registered to the Revocation list.

Refer to this item only when HDMI or DVI is displayed for the item for the type of the connected device (Table 5).
When there is also no valid SRM (include Revocation list), "--" is displayed here.

Table 9: Fs

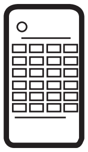
Indication	Description
32k	32kHz
44k	44.1kHz
48k	48kHz
96k	96kHz
96k/2	48kHz (original data of 96kHz is down-sampled.)
---	Audio Off

6.7 AGING MODE

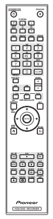
[Purposes]

If symptoms regarding recording/playback of discs and/or the HDD that your customer claimed are difficult to reproduce, they can be reproduced with a long-time test in Aging mode.

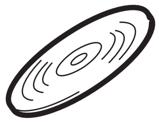
[Tools to be used]



Remote control unit for servicing (GGF1381)



Remote control unit supplied with the unit



Commercially available, recordable DVD-R/+R and DVD-RW/+RW/-RAM discs

[Notes]

- When aging for the DVD-RW/+RW/-RAM and HDD is executed, all recorded data on them will be erased.
- Commands from the remote control unit are accepted during Aging mode.
- If Aging mode is quit using the ESC key, indications on the FL display will return to normal display.
- Cancel timer settings before entering Aging mode.
- Set the recording rate beforehand. It cannot be changed during Aging mode.

[How to enter]

① Press the DVD key to switch to DVD.
② Load a recordable disc.
③ Select the input function of a recordable source.
④ After disc detection is performed, press the ESC then REP.B, and then PLAY keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during initialization: The unit stops after initialization is finished.
- If the tray is being opened/closed: The unit stops after the tray is opened/closed.

(aging for ±RW/-RAM only)

[Description of operation] **Aging for the DVD-RW/DVD-R**

Aging for the DVD-RW/+RW/-RAM	Aging for the DVD-R/+R
During Aging mode, the following operations are repeated in the order shown below. ①The tray opens. ②The tray closes. ③Initialization ④Recording for 60 minutes ⑤Playback for 45 minutes <DVD-RW> The initialization process in step 3 follows the setting specified in "Disc setting--Basic--Auto initialization of a DVD-RW." <DVD+RW> The initialization process in step 3 is the same as that described in "Disc setting--Initialization--Initialization of a DVD+RW." <DVD-RAM> In the initialization process in step 3, physical formatting is performed, if required. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD.	During Aging mode, the following operations are repeated in the order shown below. ①The tray opens. ②The tray closes. ③Recording for 1 minute ④Recording pause for 6 minutes ⑤Recording stops. ⑥Playback for 1 minute ⑦Playback pause for 6 minutes ⑧Playback stops. **Note:** A continuous test of the above operations is possible for approximately 23 hours. After ②the tray closes, disc detection is performed, <DVD-R> In step 2, if the disc is judged to have recorded up to 99 titles, the operation stops at that point. <DVD+R> If the disc is judged to have recorded up to 49 titles, the operation stops at that point. On the FL display, the number of loops is retained. On the OSD display, the error indication is retained. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD. **Note:** Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.

[Aging for the HDD]

[How to enter]

① Press the HDD key to switch to HDD.
② Press the ESC key then the REP.B, and then the PLAY keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during erasure of all memory data from the HDD, the unit stops after all memory data have been erased.

[Description of operation]

During Aging mode, the following operations are repeated in the order shown below.
① Erasure of all the memory data from the HDD
② Recording for 60 minutes
③ Playback for 60 minutes

* Take caution as all recorded data of the HDD is deleted.

[Tips]

During Aging, the number of loops is indicated on the FL display, as shown below.
[AGING 0001]

If an error is generated, the aging operation stops.

Note:

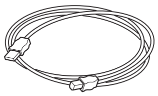
Indications on the FL display are retained, and this information is also retained as an OSD.

6.8 USB CHECK MODE

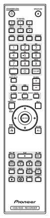
[Purposes]

As this unit is provided with two USB ports, operation checks of these ports are possible by connecting them (loop connection).

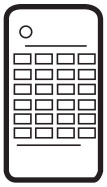
[Tools to be used]



USB cable
(GGD1445)



Remote control unit
supplied with the unit



Remote control unit for servicing
(GGF1381)

[How to enter this mode]

1. Connect Connector A (at the front panel) and Connector B (at the front panel), using a USB cable.
2. Enter USB Check mode.
   Press the ESC key on the remote control unit for servicing then press the TIMER REC key on the remote control unit supplied with this unit.

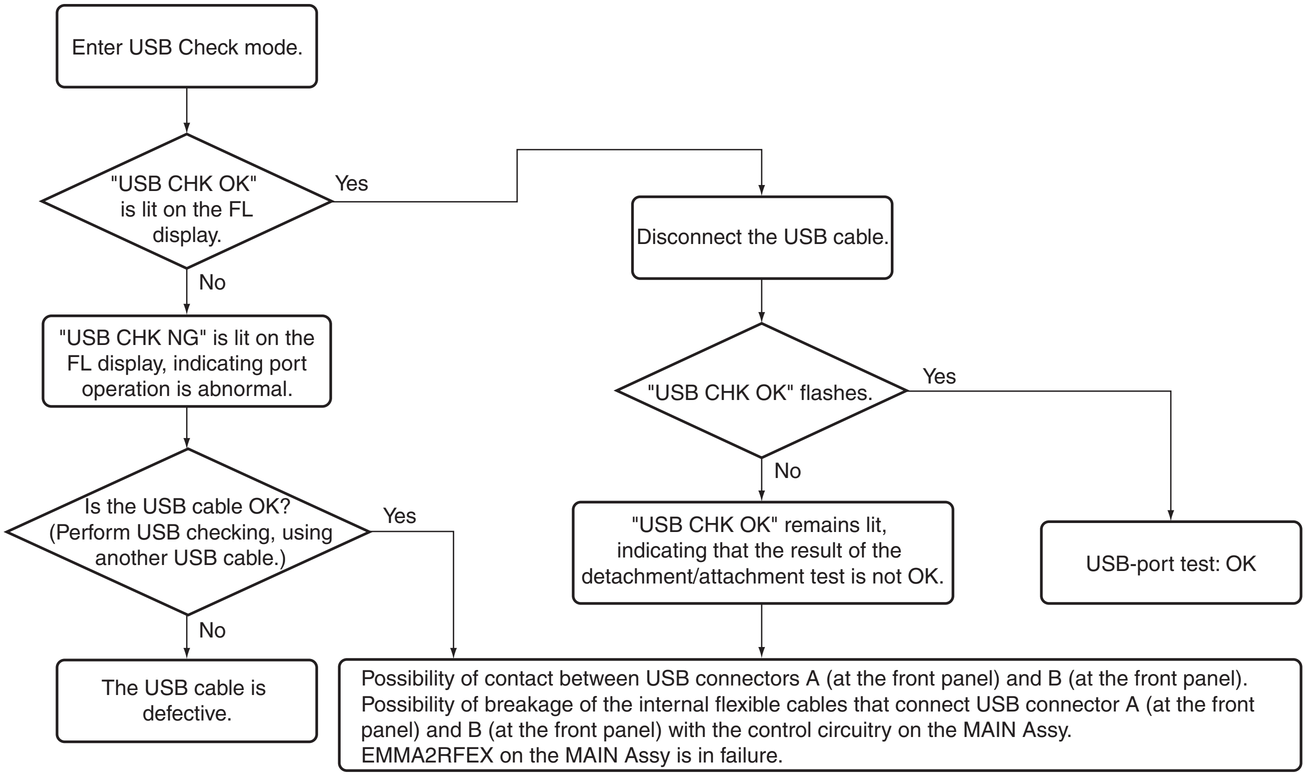
[How to quit] To quit while the ports are operating properly ("USB CHK OK" is lit.): Press the ESC key or the clear key.
To quit while port operation is abnormal: Turn the power off then back on.

[Procedures]

1. Check the indication on the FL display.
   When the two ports are operating properly: "USB CHK OK" is lit.
   When port operation is abnormal: "USB CHK NG" is lit.

2. When "USB CHK OK" is lit in Step 1, disconnect the USB cable in order to perform the detachment/attachment test.
   The indication on the FL display will change, as follows:
   If the result is OK: "USB CHK OK" will flash.
   If the result is not OK: "USB CHK OK" will remain lit.

[Troubleshooting]


Enter USB Check mode.
"USB CHK OK" is lit on the FL display.
Yes
No
Disconnect the USB cable.
"USB CHK NG" is lit on the FL display, indicating port operation is abnormal.
"USB CHK OK" flashes.
Yes
No
Is the USB cable OK? (Perform USB checking, using another USB cable.)
Yes
No
"USB CHK OK" remains lit, indicating that the result of the detachment/attachment test is not OK.
USB-port test: OK
The USB cable is defective.
Possibility of contact between USB connectors A (at the front panel) and B (at the front panel).
Possibility of breakage of the internal flexible cables that connect USB connector A (at the front panel) and B (at the front panel) with the control circuitry on the MAIN Assy.
EMMA2RFEX on the MAIN Assy is in failure.

6.9 HDD CHECK MODE

[1] How to Diagnose Failure of the Hard Disc Drive (HDD)

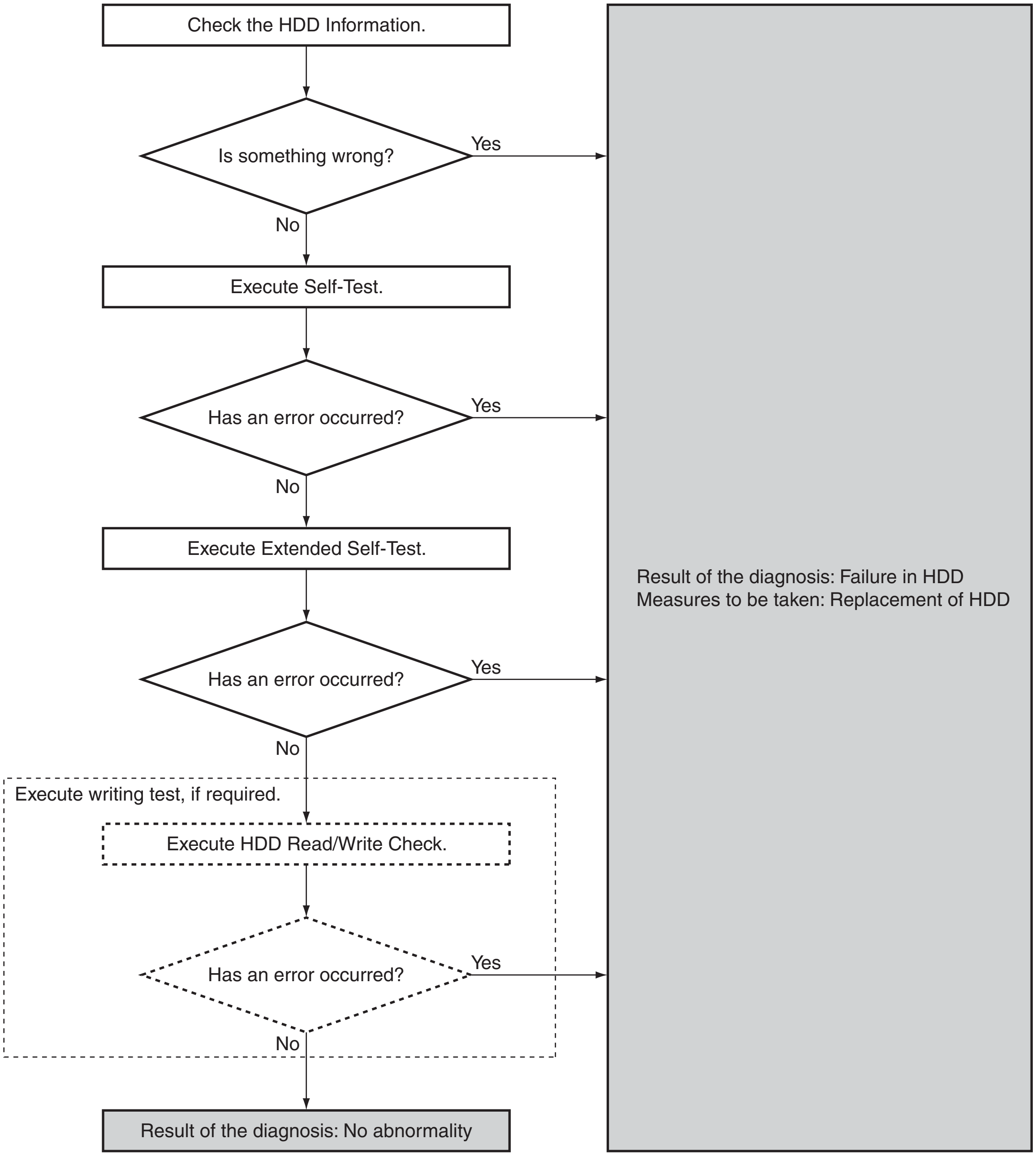
Purpose:
With use of the HDD-diagnostic program contained in the product itself, physical errors on the HDD can be diagnosed. Use this program to diagnose whether or not the HDD is in failure when one of the symptoms indicated below is recognized, or when a failure in the HDD is suspected.

Symptoms of failure in HDD:
(1) HDD Error
(2) Failure in HDD recording or playback
(3) HDD not recognized

Tool to be used:
Remote control unit for servicing (GGF1381)

[2] Flow of HDD Diagnosis

(1) Flowchart of HDD diagnosis


Check the HDD Information.
Is something wrong?
Yes
No
Execute Self-Test.
Has an error occurred?
Yes
No
Execute Extended Self-Test.
Has an error occurred?
Yes
No
Execute writing test, if required.
Execute HDD Read/Write Check.
Has an error occurred?
Yes
No
Result of the diagnosis: No abnormality
Result of the diagnosis: Failure in HDD
Measures to be taken: Replacement of HDD

(2) Overview of the diagnosis items

HDD Information	This is a display for checking the HDD information, such as the model name of the HDD, continuous power-on time, authentication status, and results of the diagnosis on the end of service life.
SELF TEST	This is a simplified diagnosis for the HDD. A serious failure in the HDD can be detected with this test. Time required for testing: Approx. 60 sec.
EXTENDED SELF TEST	This is a reading test across all sectors of the HDD. Data recorded on the HDD will not be erased, because no writing operation is performed. Time required for testing: Approx. 2.5 hours/500 GB 1.3 hours/250 GB
HDD Read / Write Check	This is a writing, reading, and comparing test across all sectors of the HDD. **All data recorded on the HDD will be erased**, because all the data are to be overwritten. **Be sure to obtain your client's consent beforehand.** Time required for testing: Approx. 15 hours/500 GB 8 hours/250 GB You must redownload Gracenote DB data, because Gracenote DB data are to be over written too. (DVR-660H-K, 560-K only)

[3] How to Start or Terminate the Diagnostic Program

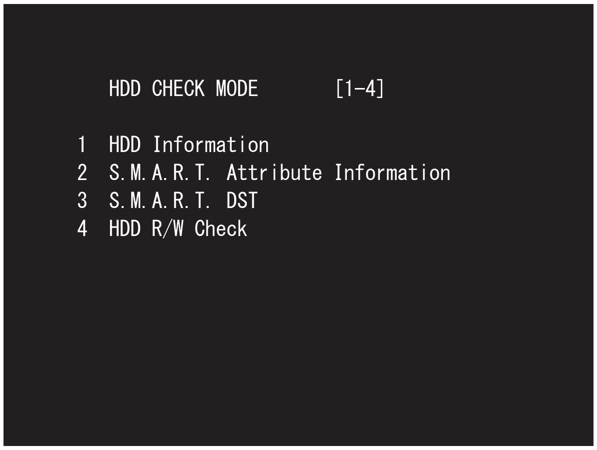
How to start/terminate the diagnostic program

Use the remote control unit for servicing.
How to start: Press the "ESC", "CX", "0", and "1" keys simultaneously.
How to terminate: Press the "ESC" key.
Do NOT perform other operations on the unit while the HDD diagnosis is in progress. Although the diagnostic program is designed to function independently from the unit's functions, an operation on the unit during a diagnosis may cause a malfunction.
The status of the unit recommended during diagnosis is as follows: All stop, no timer recording (including auto-recording), and Input selection to L1-L3.

[4] Diagnosis Procedures

1.Display the menu on the screen.

The menu indicated below is displayed when the diagnostic program is started. To enter each mode, press the corresponding key "1"-"4" on the remote control unit for servicing.



```
   HDD CHECK MODE       [1-4]

1  HDD Information
2  S.M.A.R.T. Attribute Information
3  S.M.A.R.T. DST
4  HDD R/W Check
```

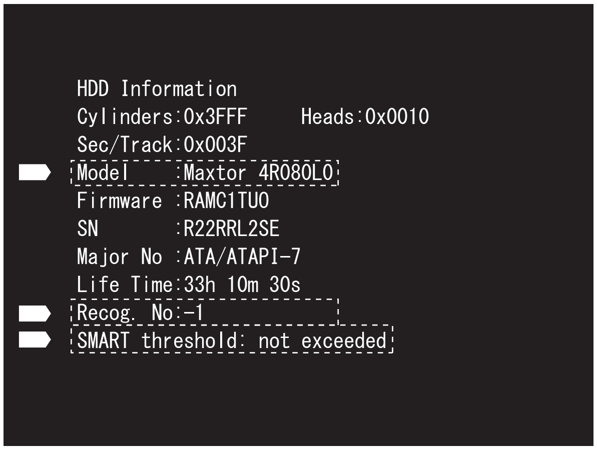
Tests to be executed

1. HDD Information:
   Check of the HDD information
2. S.M.A.R.T. DST:
   Executing a simplified test or a reading test of all data
3. HDD R/W Check:
   Executing a writing/reading test of all data. All data on the HDD will be erased if this test is executed.

Note: "2. S.M.A.R.T. Attribute . . ." is not to be used.

2.Check the HDD information.

Press the "1" key on the remote control unit for servicing. Check the following data:
Model: Is the correct model name of the HDD displayed?
Recog. No: Is a positive value displayed?
SMART threshold: Is "not exceeded" displayed?



```
HDD Information
Cylinders:0x3FFF     Heads:0x0010
Sec/Track:0x003F
Model    :Maxtor 4R080L0
Firmware :RAMC1TU0
SN       :R22RRL2SE
Major No :ATA/ATAPI-7
Life Time:33h 10m 30s
Recog. No:-1
SMART threshold: not exceeded
```

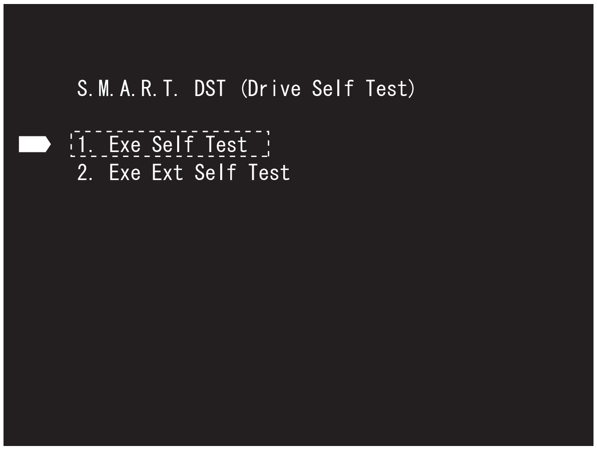
Detailed description

1. Model:
   For the correct model name, refer to the display of the unit.
2. Recog. No:
   Positive value: The HDD has been authenticated.
   Negative value: The HDD has not been authenticated.
3. SMART threshold:
   exceeded: The HDD has come to the end or near the end of its service life.
   not exceeded: The HDD has not reached the end of its service life.

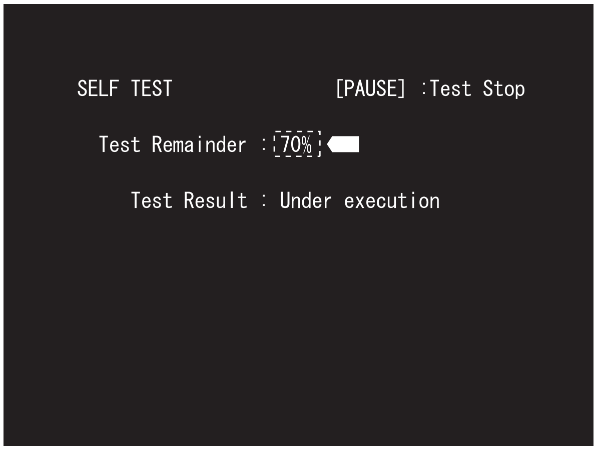
To return to the menu screen, press the "Clear" key.

3.Execute Self-Test.

Press the "3" key on the remote control unit for servicing while the menu screen is displayed.
When the following screen is displayed, press the "1" key to start the Self-Test.



```
S.M.A.R.T. DST (Drive Self Test)

1. Exe Self Test
2. Exe Ext Self Test
```



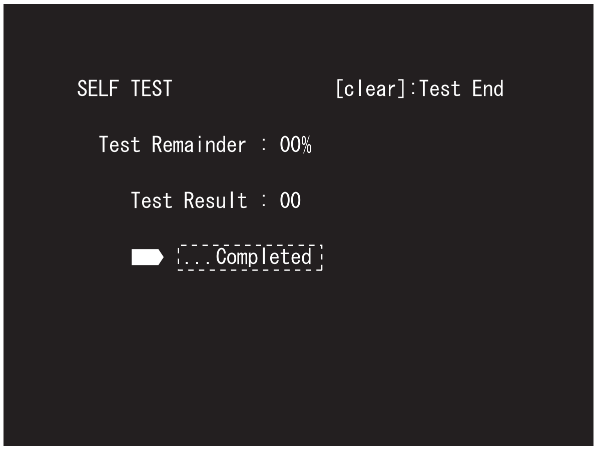
```
SELF TEST              [PAUSE] :Test Stop

   Test Remainder : 70%

       Test Result : Under execution
```

The progress of the test is displayed on the screen. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%.
Check whether or not an error has occurred after the test is finished.

Diagnosis results
- Without an error: ". . . Completed" is displayed.
  Then, proceed to the Extended Self-Test.
- With an error: ". . . Error" is displayed. Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

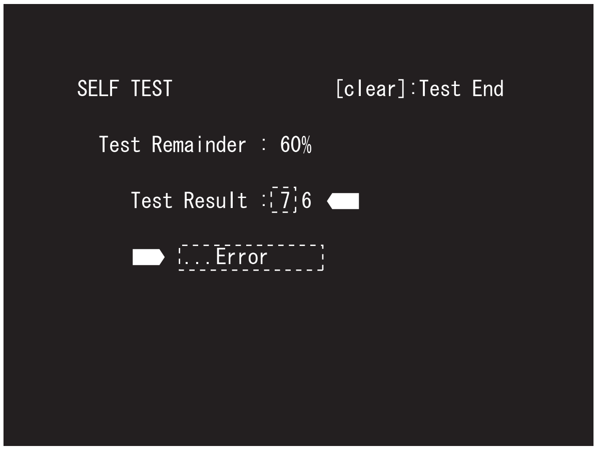
Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error



```
SELF TEST              [clear]:Test End

   Test Remainder : 00%

       Test Result : 00

       ...Completed
```

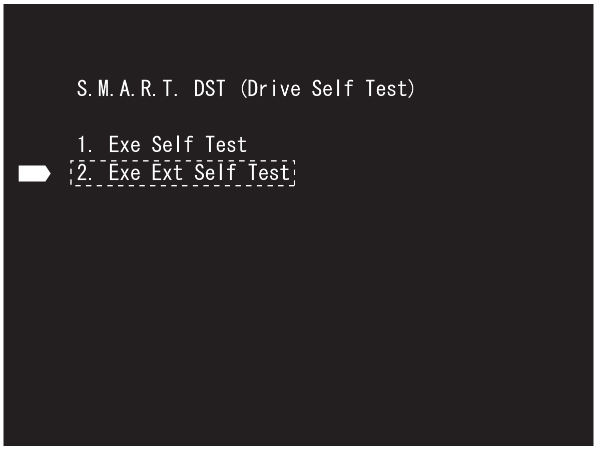
Example: With an error



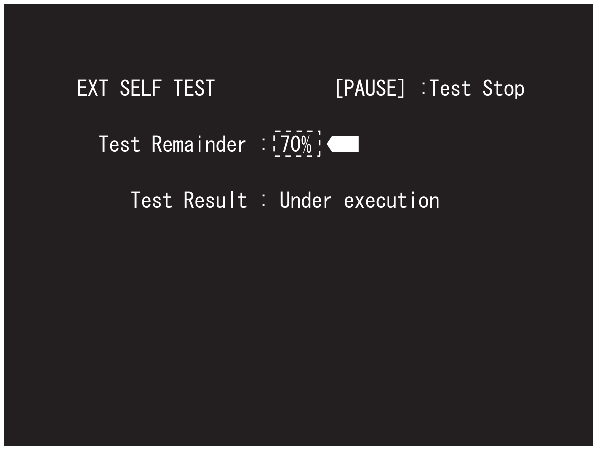
```
SELF TEST              [clear]:Test End

   Test Remainder : 60%

       Test Result : 76

       ...Error
```

To return to the menu screen, press the "Clear" key.

4.Execute the Ext (Extended) Self-Test.



```
S.M.A.R.T. DST (Drive Self Test)

1. Exe Self Test
2. Exe Ext Self Test
```



```
EXT SELF TEST          [PAUSE] :Test Stop

  Test Remainder : 70%

     Test Result : Under execution
```

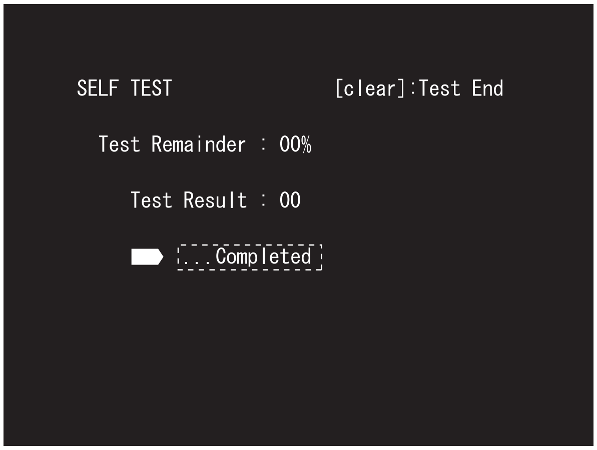
Press the "3" key while the menu screen is displayed, then the "2" key on the remote control unit for servicing.
The Extended Self-Test starts. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%. Check whether or not an error has occurred after the test is finished.

Diagnosis results

- Without an error: ". . . Completed" is displayed.
  If no error occurs up until this stage, HDD operations are normal except for writing operations.
  If the unit has a failure in HDD playback, a block other than the HDD may be in failure.
  If the unit's failure is in HDD recording, however, the next HDD Read/Write Check must be executed to test writing operations.
- With an error: ". . . Error" is displayed.
  Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Ext Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

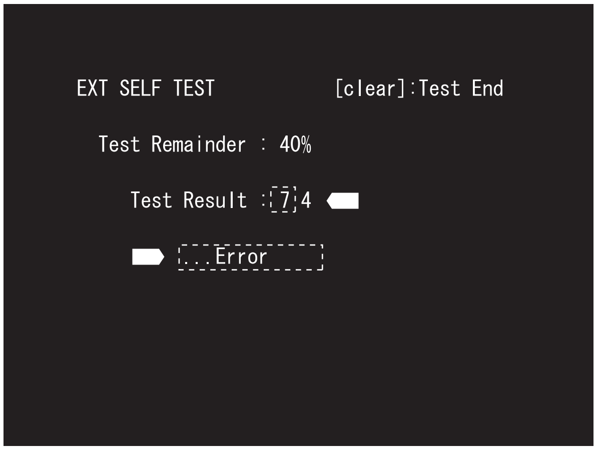
Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error



```
SELF TEST              [clear]:Test End

  Test Remainder : 00%

     Test Result : 00

     ...Completed
```

Example: With an error



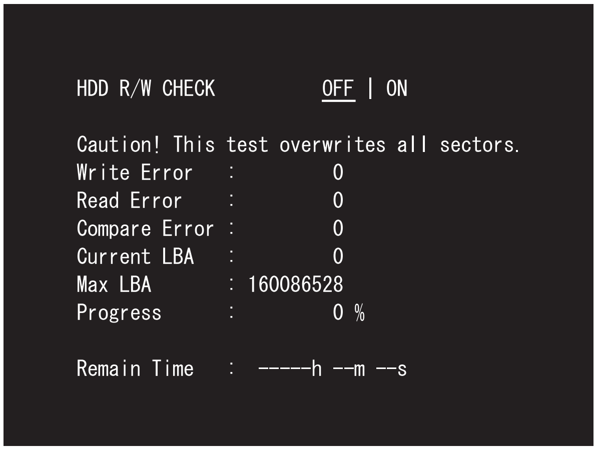
```
EXT SELF TEST          [clear]:Test End

  Test Remainder : 40%

     Test Result : 74

     ...Error
```

To return to the menu screen, press the "Clear" key.

5.Execute the HDD R/W Check.

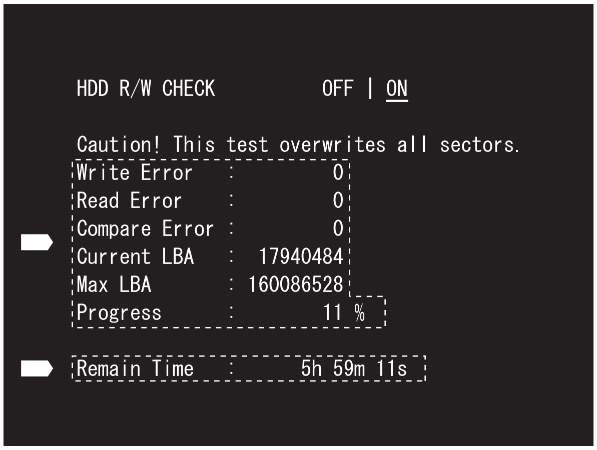
Before executing this test, **be sure to obtain your client's consent for erasure of HDD data**.
Press the "4" key while the menu screen is displayed then the "SKIP ▶▶I" key to start the HDD R/W Check.

NOTE
Be sure to press the "SKIP I◀◀" key to complete this test after the progress reaches 100% or cancel this test (OFF) while it's in progress.
Do not press "ESC" key without pressing "SKIP I◀◀" key, otherwise this test is not completed and it causes unexpected errors on the HDD.



```
HDD R/W CHECK         OFF | ON

Caution! This test overwrites all sectors.
Write Error   :         0
Read Error    :         0
Compare Error :         0
Current LBA   :         0
Max LBA       : 160086528
Progress      :         0 %

Remain Time   :  -----h --m --s
```

The display on the left indicates the progress of the test.
The percentage of the test progress is displayed on the screen, and the test is finished when the percentage reaches 100%.



```
HDD R/W CHECK         OFF | ON

Caution! This test overwrites all sectors.
Write Error   :         0
Read Error    :         0
Compare Error :         0
Current LBA   :  17940484
Max LBA       : 160086528
Progress      :        11 %

Remain Time   :      5h 59m 11s
```

Detailed description on each item on the screen

- Write Error: Number of write errors
- Read Error: Number of read errors
- Compare Error: Number of comparison errors
- Current LBA: The address during testing
- Max LBA: Highest address number of the HDD
- Progress: Percentage of test progress (%)
- Remain Time: Estimated time required for finishing the test across all sectors.
  Estimated time: 15 hours/500 GB
  8 hours/250 GB

Diagnosis results

- If no error occurs in any of the Write/Read/Compare items, the HDD is in normal condition and is not required to be replaced. A block other than the HDD is in failure.
- If any error occurs, the HDD must be replaced.

When the status is OFF
To terminate the diagnostic program, press the "ESC" key.

When the status is ON
The status becomes OFF when the test is interrupted by pressing the "SKIP I◀◀" key or when "Progress" reaches 100%.

6.10 DIAGNOSTIC PROCEDURES WHEN AAC DECODING HAS FAILED

[1] AAC information

[Purpose]

AAC Error Information

[How to Enter]

Press [ESC], [DISP], [+10], then [1], in that order. The first screen is displayed.
To switch screens, press [DIG/ANA].

First screen

```
[CD Media Debug Information]

Total Track:**(DA:** ROM:**)  Session:******

Application:
   External:--  (Note 1)
```

Note 1: Startup status (OK/NG) of the external decoder
If the external decoder starts up normally, OK is displayed. If it fails to start up, NG is displayed. With NG, playback of any AAC file will fail.

Second screen: Information on playback of MUSIC files

```
[MUSIC] [*ch  ****Kbps  **KHz-**Bit]  SRC:****
HEAD:[ AAC-xxxx(xxxx) FS:xx(xx) STSS:[xxx x]      ]

CurStat:*********   TgtStat:*********
ERROR; ******** (                             )
      (Note 2)  (                             )
ADDRESS; NOW  :0x00000000   TOP  :0x00000000
         START:0x00000000   END  :0x00000000
         ENTRY:0x00000000
TIME ;   NOW  :**.**.**   TOTAL:**.**.**

FMODE; AREA:[*** *]  MODE:*****  ERR:**** CPR:****

FILE ;  CurNo:****_**  TgtNo:****_**   Total:****
        Name :
FOLDER; CurNo:****(****)  TgtNo:****(****)  Total:****
        Name :
```

Note 2:
ERROR information
If any error code is indicated in parentheses, a playback error has been generated. Each error code is displayed in its fixed position. (The duration of error-code indication is short, because when an error is generated, playback of the next file is automatically attempted.)

Description of error codes

FMT : The file cannot be recognized as having an MP4 file format.
DEC : Although the file is recognized as playable, the decoder could not decode the data of the file correctly.
CH : The number of channels is not supported.
QNT : The quantization bit rate is not supported.
BPS : The bit rate is not supported.
FS : The sampling frequency is not supported.
BOX : The file format is judged to be not supported upon analysis of the MP4 file.
PRF : The Advanced Audio Codec (AAC) is judged to be not playable.
MEM : The system failed to secure the amount of memory required for playback.

Note 2:
ERROR information

If any error code is indicated in parentheses, a playback error has been generated. Each error code is displayed in its fixed position. (The duration of error-code indication is short, because when an error is generated, playback of the next file is automatically attempted.)

Description of error codes

FMT	: The file cannot be recognized as having an MP4 file format.
DEC	: Although the file is recognized as playable, the decoder could not decode the data of the file correctly.
CH	: The number of channels is not supported.
QNT	: The quantization bit rate is not supported.
BPS	: The bit rate is not supported.
FS	: The sampling frequency is not supported.
BOX	: The file format is judged to be not supported upon analysis of the MP4 file.
PRF	: The Advanced Audio Codec (AAC) is judged to be not playable.
MEM	: The system failed to secure the amount of memory required for playback.

Possible causes for errors and how to diagnose

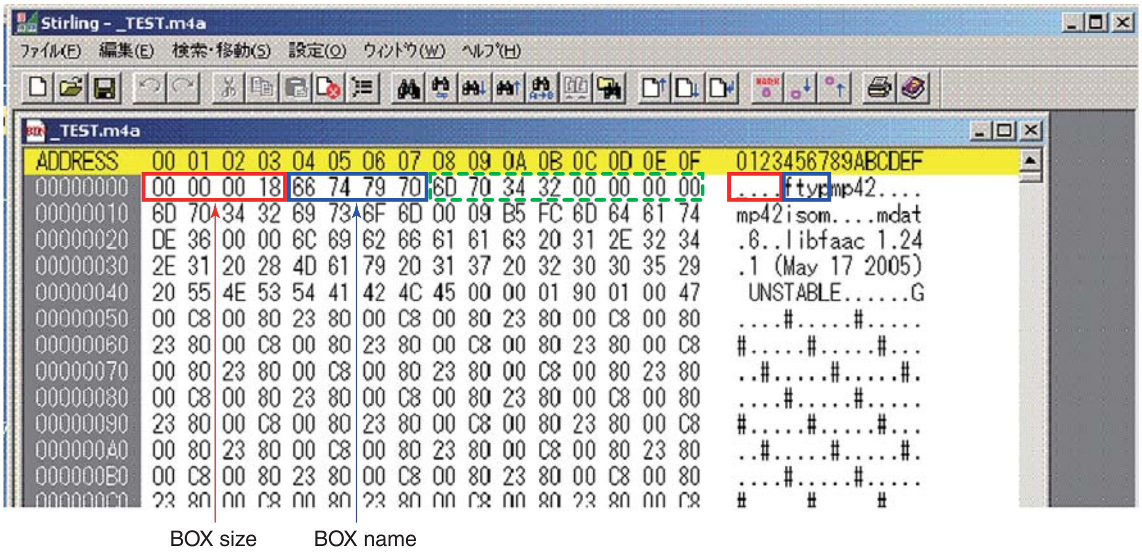
Possible causes for an FMT error

Possible cause 1: Impossible box size for the first box of an MP4 format file

How to diagnose: Check the binary data of the file with which an FMT error was generated. Consider the first 4 bytes at the beginning of the file as the box size and check if the size is 0 or a value that exceeds the file size.
If the box size is 1, consider the 8 bytes from the 8th byte from the beginning as the box size. Check if the size is 0 or a value that exceeds the file size.

How to check the box size:

For checking the binary data of the file, use the Binary Editor of the PC tools.
The figure below shows the binary data of an MPEG4 file:



```
ADDRESS   00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F   0123456789ABCDEF
00000000  00 00 00 18 66 74 79 70 6D 70 34 32 00 00 00 00   ....ftypmp42....
00000010  6D 70 34 32 69 73 6F 6D 00 09 B5 FC 6D 64 61 74   mp42isom....mdat
00000020  DE 36 00 00 6C 69 62 66 61 61 63 20 31 2E 32 34   .6..libfaac 1.24
00000030  2E 31 20 28 4D 61 79 20 31 37 20 32 30 30 35 29   .1 (May 17 2005)
00000040  20 55 4E 53 54 41 42 4C 45 00 00 01 90 01 00 47    UNSTABLE......G
00000050  00 C8 00 80 23 80 00 C8 00 80 23 80 00 C8 00 80   ....#.....#.....
00000060  23 80 00 C8 00 80 23 80 00 C8 00 80 23 80 00 C8   #.....#.....#...
00000070  00 80 23 80 00 C8 00 80 23 80 00 C8 00 80 23 80   ..#.....#.....#.
00000080  00 C8 00 80 23 80 00 C8 00 80 23 80 00 C8 00 80   ....#.....#.....
00000090  23 80 00 C8 00 80 23 80 00 C8 00 80 23 80 00 C8   #.....#.....#...
000000A0  00 80 23 80 00 C8 00 80 23 80 00 C8 00 80 23 80   ..#.....#.....#.
000000B0  00 C8 00 80 23 80 00 C8 00 80 23 80 00 C8 00 80   ....#.....#.....
000000C0  23 80 00 C8 00 80 23 80 00 C8 00 80 23 80 00 C8   #     #     #
```

With this file, the first box is an "ftyp" box, and its size is 0x18 bytes (the figure in the frame in red).
In a case of an FMT error, the first box size is 0 or a value that exceeds the file size (impossible value for the MPEG4 file format).
If the box size is 1, the data that are framed in dotted green lines in the above figure are treated as the box size.

Possible cause 2: Failure in data reading during file analysis

How to diagnose: Check the ATA error log on the Debug screen.

How to check the ATA error log:

Display the ATA error log page by pressing [ESC], [DISP], [2], then [DIG/ANA], in that order.
The first 4 digits denote date, and the next 6 digits denote time. Check if the date and time match those when an error was generated during AAC playback.
You can switch between Writer and HDD data, using [FRM/TIM]. Switch according to the type of medium being played back.
For USB, there is no log for reading errors.

Possible causes for a DEC error
Possible cause 1: An error notification was issued by the decoder, because there was an error in the stream.
How to diagnose: Play back the file on the PC to check if an error is generated.

Possible cause 2: Data reading failed while the data were being transmitted to the decoder.
How to diagnose: Check the ATA error log on the Debug screen.
* See "How to check the ATA error log," above.

A "CH" error does not occur during AAC playback.

Possible causes for a QNT error
Possible cause 1: The encoding method is not 16-bit quantization.
How to diagnose: Check the number of quantization bits, using a PC analysis tool.

Possible cause 2: After data reading failed, an erroneous number of quantization bits was obtained.
How to diagnose: Check the ATA error log on the Debug screen.
* See "How to check the ATA error log," above.

Possible causes for a BPS error
Possible cause 1: The average bit rate exceeded 480 Kbps.
How to diagnose: Check the average bit rate, using a PC analysis tool.

Possible cause 2: After data reading failed, an erroneous average bit rate was obtained.
How to diagnose: Check the ATA error log on the Debug screen.
* See "How to check the ATA error log," above.

Possible causes for an FS error
Possible cause 1: The sampling frequency was less than 8 KHz or greater than 96 KHz.
How to diagnose: Check the sampling frequency, using a PC analysis tool.

Possible cause 2: After data reading failed, an erroneous sampling frequency was obtained.
How to diagnose: Check the ATA error log on the Debug screen.
* See "How to check the ATA error log," above.

Possible causes for a BOX error
Possible cause 1: An impossible box size was obtained during box analysis.
How to diagnose: Check the box size, using a PC analysis tool.

Possible cause 2: Data necessary for playback could not be obtained.
How to diagnose: Analyze the file, using a PC analysis tool, and check that SAMPLE DESCRIPTION BOX, TIME TO SAMPLE BOX, SAMPLE SIZE BOX (SAMPLE SIZE 2 BOX), SAMPLE TO CHUNK BOX, CHUNK OFFSET BOX (64BIT CHUNK OFFSET BOX) exist.

Possible cause 3: SAMPLE DESCRIPTION BOX, which signifies that audio streams are contained, did not exist.
How to diagnose: Check the binary data of the file with which this error was generated and confirm that the 20th byte does not indicate "mp4a." (A DRM file may also have this error.)

Possible cause 4: "AudioSpecificConfig" was not described in "SAMPLE DESCRIPTION BOX," which should show that an audio stream is contained.
How to diagnose: Check AudioSpecificConfig, using a PC analysis tool.

Possible cause 5: Data reading failed during file analysis.
How to diagnose: Check the ATA error log on the Debug screen.
* See "How to check the ATA error log," above.

Possible causes for a PRF error
Possible cause 1: Audio streams were not contained in "AAC LC" and "High Efficiency AAC Profile."
How to diagnose: Check the type of audio stream in AudioObjectType of AudioSpecificConfig, using a PC analysis tool.

Possible cause 2: After data reading failed, erroneous AudioObjectType data were obtained.
How to diagnose: Check the ATA error log on the Debug screen.
* See "How to check the ATA error log," above.

Possible causes for an MEM error
Possible cause 1: The shared memory region for the system was fragmented, and the memory region of 4,096 bytes that was necessary for file analysis could not be ensured.
How to diagnose: After setting the unit to Standby mode, turn the unit back on and check if an MEM error is generated.
If it is, the system memory may be defective.

6.11 DIAGNOSTIC PROCEDURES WHEN CONNECTING THE LAN

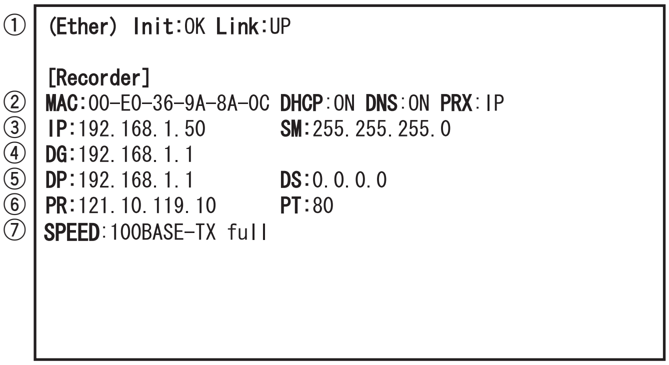
[Purpose]

Diagnose based on Ethernet connection information.

[How to Enter]

Press [ESC], [DISP], [+10], [+10], then [7], in that order.

[1] Specifications of the Ether Debug Screen



```
① (Ether) Init:OK Link:UP

  [Recorder]
② MAC:00-E0-36-9A-8A-0C DHCP:ON DNS:ON PRX:IP
③ IP:192.168.1.50       SM:255.255.255.0
④ DG:192.168.1.1
⑤ DP:192.168.1.1        DS:0.0.0.0
⑥ PR:121.10.119.10      PT:80
⑦ SPEED:100BASE-TX full
```

In bold print: Fixed indications

In regular print: Variable indications

No.	Name	Descriptions	Remarks
①	Init	Whether initialization of LAN9211 (Ethernet Controller) has been completed successfully (OK) or not (NG)	In a case of NG, communication between the LAN9211 and EMMA2RFEx may have failed.
	Link	Whether the unit is connected to equipment that can communicate through Ethernet and has established links (UP) or not (DOWN)	
②	MAC	MAC address that is set for the unit	
	DHCP	Setting for automatic acquisition of an IP address	
	DNS	Setting for automatic acquisition of a DNS server	
	PRX	Proxy setting	With the Proxy setting ON, when the server assignment method is server name or IP address, NAME or IP is indicated, respectively.
③	IP	IP address that is set for the unit	
	SM	Subnet mask that is set for the unit	
④	DG	Default gateway that is set for the unit	
⑤	DP	DNS server primary address	
	DS	DNS server secondary address	
⑥	PR	With the Proxy setting ON, the server name or IP address is displayed.	With the Proxy setting OFF, - - - is displayed.
	PT	With the Proxy setting ON, the port number is displayed.	With the Proxy setting OFF, - - - is displayed.
⑦	SPEED	Display the communication speed and Duplex mode.	

[2] Simple diagnostic procedures

Sympton: Neither CDDBonline search nor ConnectPC (Ethernet) function.

No.	Screen Position	Check Items and Unit Status	Possible Cause
1	Ether ①	Init indication: OK: Initialization of the Ethernet-associated LSI (IC301) has been successfully completed. NG: Poor communication between the Ethernet-associated LSI (IC301) and HOST microcomputer (IC1001). Initialization of the Ethernet-associated LSI (IC301) has failed.	With NG: Failure in IC301 (the Ethernet Controller). Failure in communication between IC301 and IC1001, defective solder, or failure in power supply.
2	Ether ①	Link indication: UP: The unit is connected to equipment that can communicate through Ethernet and has established links. DOWN: The links are not established.	With DOWN: Defective LAN terminal, poor connection of the ETAB board, defective LAN cable, the router's power is OFF, or the connected equipment cannot communicate through Ethernet.
3	Ether ②	IP indication: Is the IP address set within the ranges shown below? CLASS A: 10.0.0.1 to 10.255.255.254 CLASS B: 172.16.0.1 to 172.31.255.254 CLASS C: 192.168.0.1 to 192.168.255.254	With an IP address that is out of the range described on the left: If automatic acquisition of an IP address is set to ON, check the setting of the router.

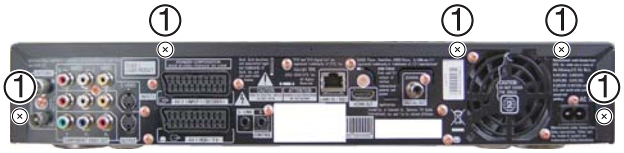
7. DISASSEMBLY

Note 1: Do NOT look directly into the pickup lens. The laser beam may cause eye injury.
Note 2: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Diagnosis

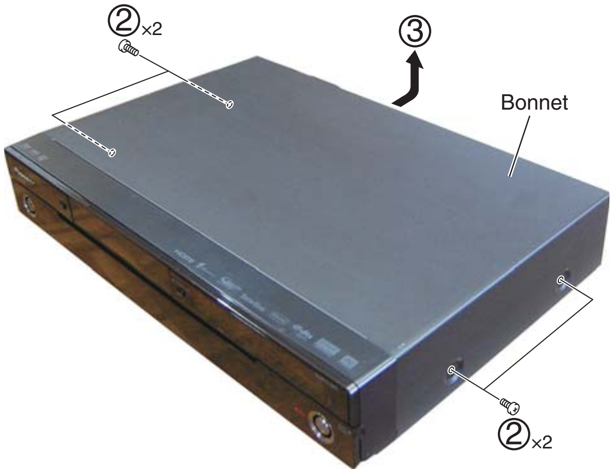
1 Bonnet

① Remove the five screws.



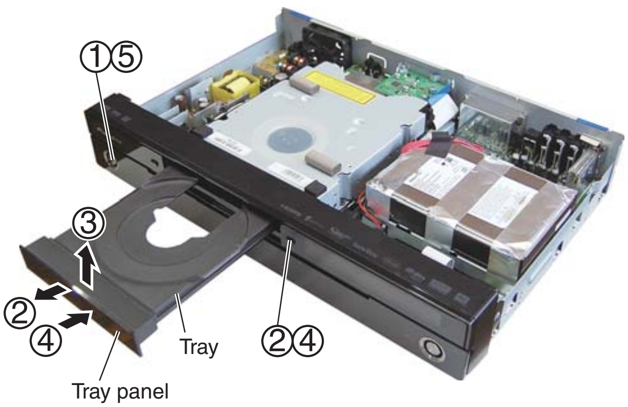
● **Rear view**

② Remove the four screws.
③ Remove the bonnet.


②×2
③
Bonnet
②×2

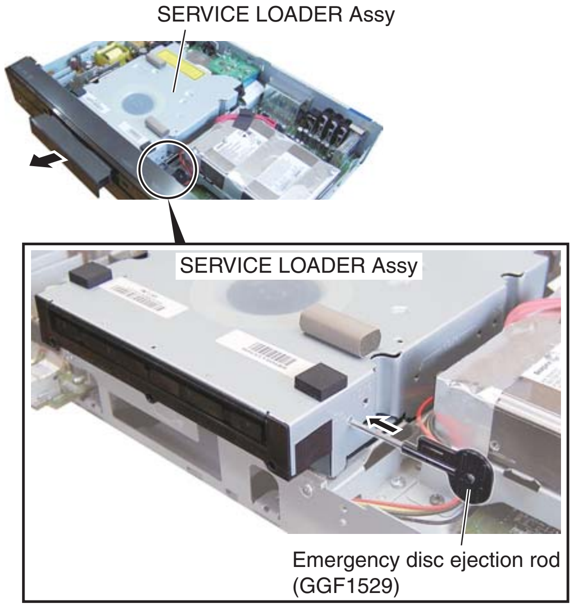
2 Tray Panel

① Press the ⏻ STANDBY/ON button to turn on the power.
② Press the ⏏ OPEN/CLOSE button to open the tray.
③ Remove the tray panel.
④ Press the ⏏ OPEN/CLOSE button to close the tray.
⑤ Press the ⏻ STANDBY/ON button to turn off the power.


①⑤
③
②
④
Tray
②④
Tray panel

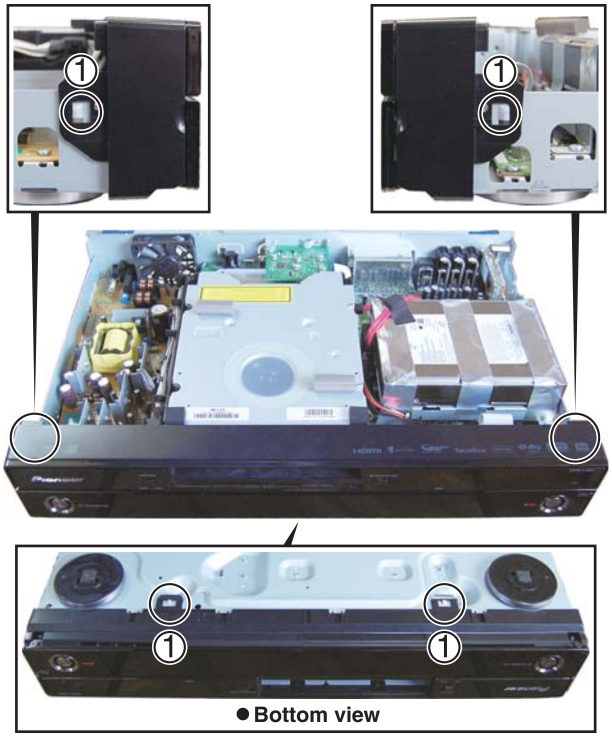
● How to open the tray when the power cannot be turned on

When the tray cannot be opened because the power cannot be turned on, it can be opened using the emergency disc ejection rod (GGF1529). (A long, thin rod about 1 mm in diameter can be used in place of the rod.)

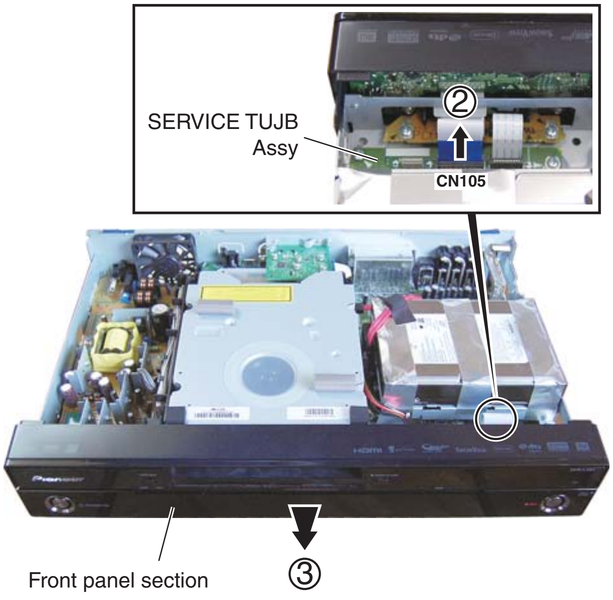

SERVICE LOADER Assy
SERVICE LOADER Assy
Emergency disc ejection rod
(GGF1529)

3 Front Panel Section

① Unhook the four hooks.

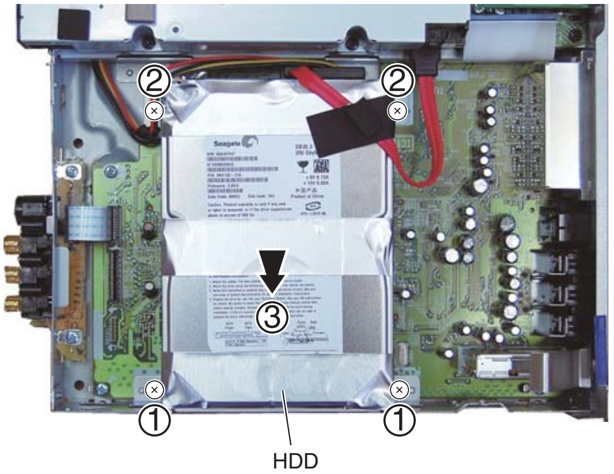

①
①
①
①
● Bottom view

② Disconnect the one flexible cable.
③ Remove the front panel section.


SERVICE TUJB Assy
②
CN105
Front panel section
③

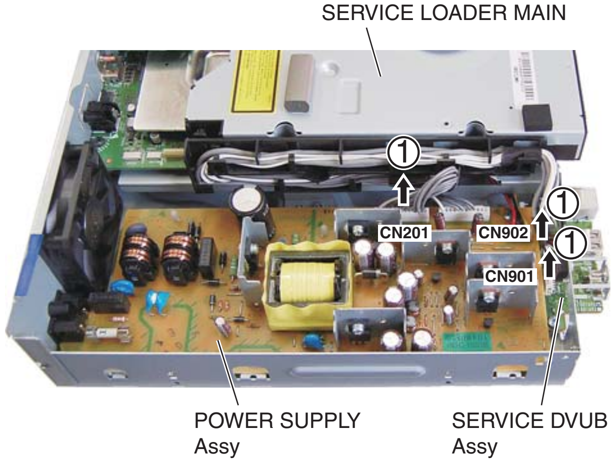
4 HDD

① Remove the two screws.
② Remove the two screws.
③ Remove the HDD with the HDD stay.



5 SERVICE LOADER MAIN

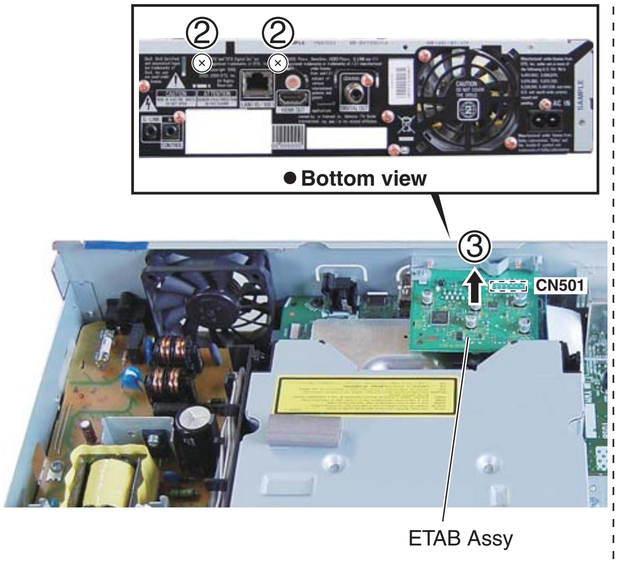
① Disconnect the three connectors.


SERVICE LOADER MAIN
①
CN201
CN902
①
①
CN901
POWER SUPPLY Assy
SERVICE DVUB Assy

DVR-660H-K Only

② Remove the two screws.

③ Remove the ETAB Assy while disconnecting the B to B connector.


②
②
● Bottom view
③
CN501
ETAB Assy

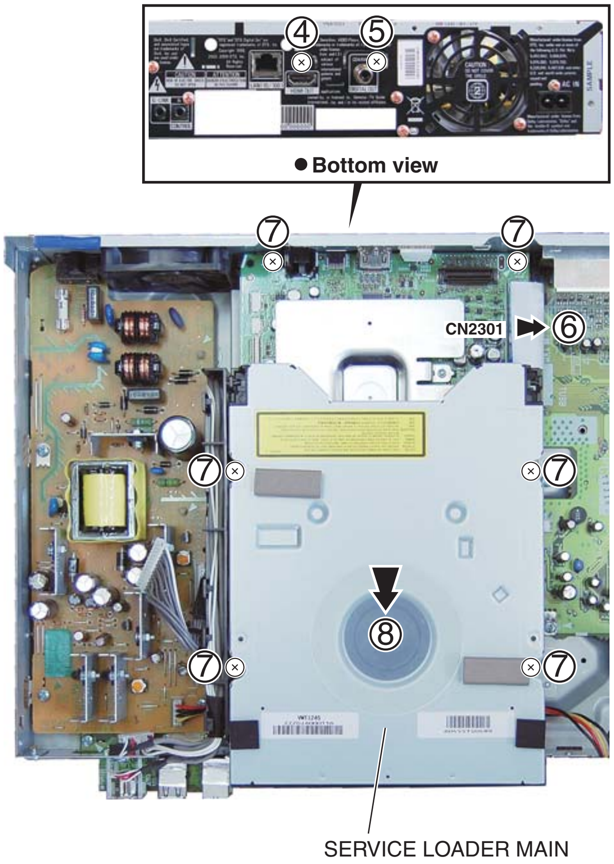
④ Remove the one screw.

⑤ Remove the one screw.

⑥ Disconnect the one flexible cable.

⑦ Remove the six screws.

⑧ Remove the SERVICE LOADER MAIN.


④
⑤
● Bottom view
⑦
⑦
CN2301
⑥
⑦
⑦
⑧
⑦
⑦
SERVICE LOADER MAIN

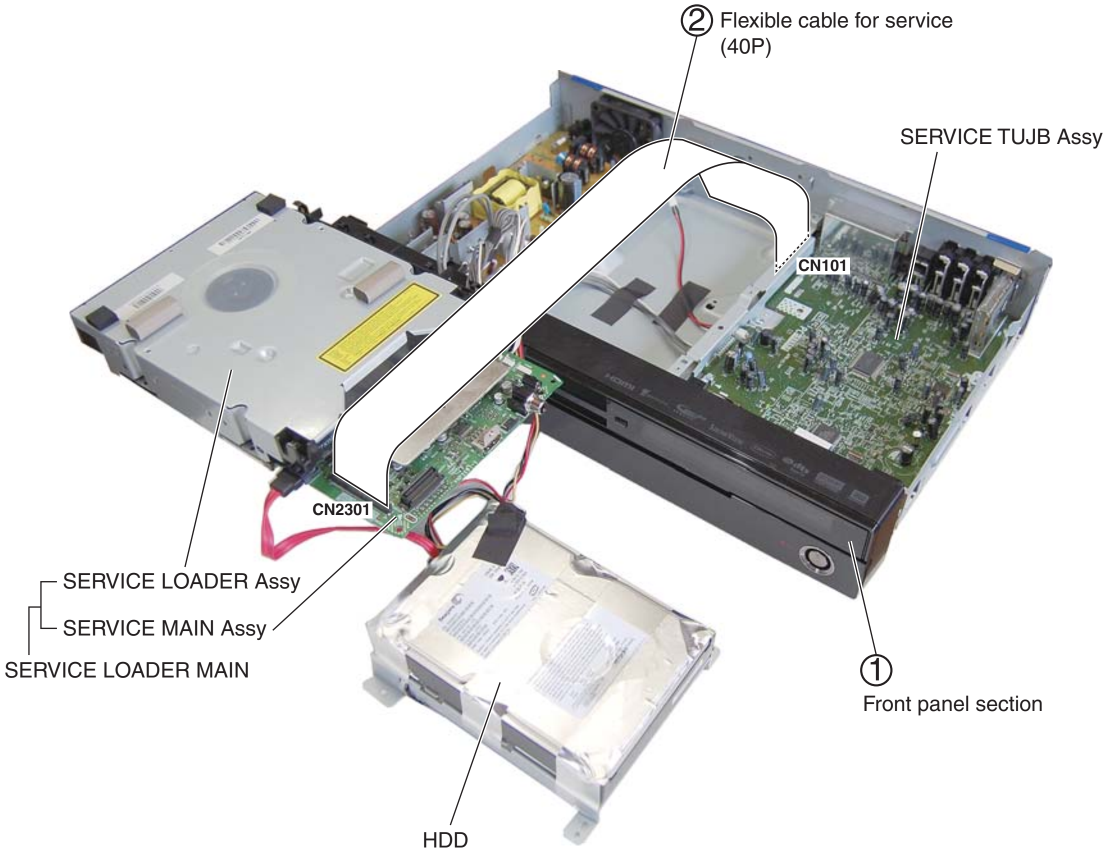
6 Diagnosis

① Reassembling the front panel section.

② Connect the flexible cable for service.

③ Arrange the unit as shown in the photo below.

Diagnosis

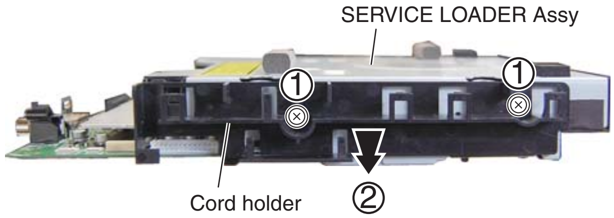

② Flexible cable for service (40P)
SERVICE TUJB Assy
CN101
CN2301
SERVICE LOADER Assy
SERVICE MAIN Assy
SERVICE LOADER MAIN
① Front panel section
HDD

Access to the SERVICE MAIN Assy, Cleaning the Pickup Lens

● Cord Holder

① Remove the two screws.

② Remove the cord holder.

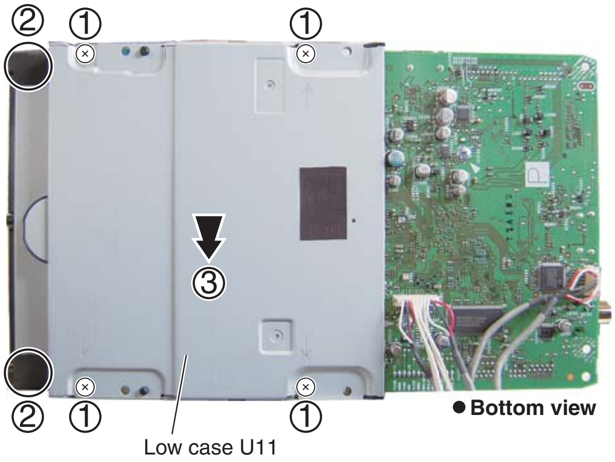

SERVICE LOADER Assy
①
①
Cord holder
②

● Low Case U11, Upper Case

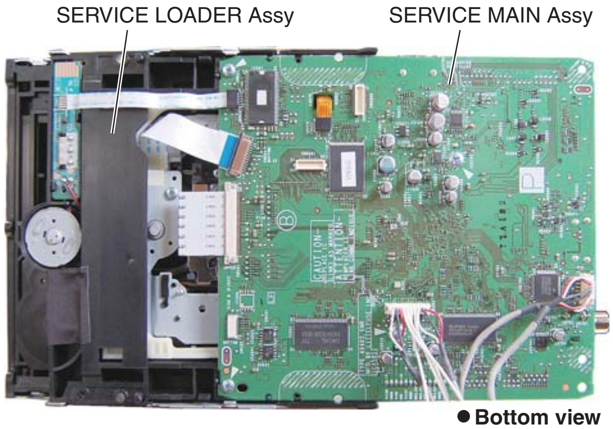
① Remove the four screws.

② Remove the two tapes.

③ Remove the low case U11.

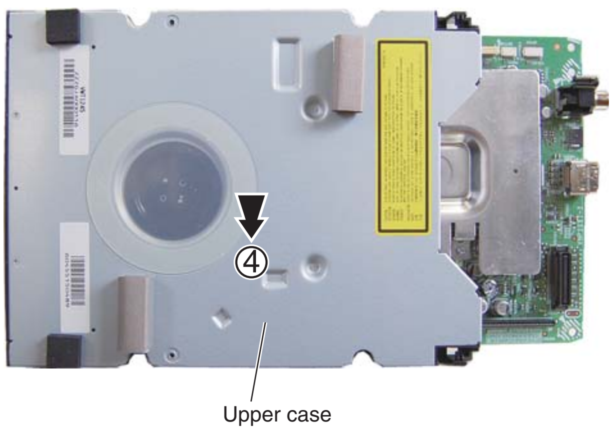

②
①
①
③
②
①
①
Low case U11

● Bottom view


SERVICE LOADER Assy
SERVICE MAIN Assy

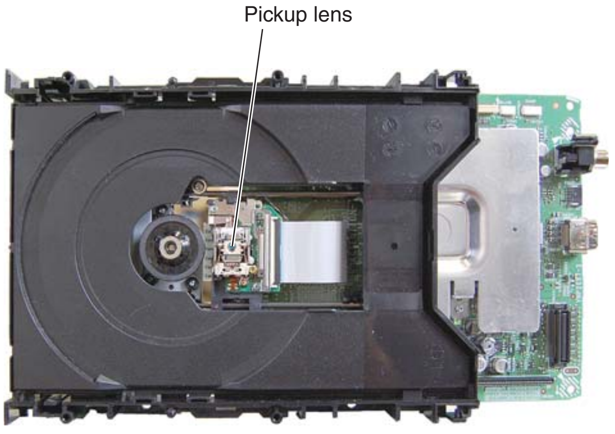
● Bottom view

④ Remove the Upper case.


④
Upper case

Before shipment, be sure to clean the pickup lens, using the following cleaning materials:

Cleaning liquid : GEM1004
Cleaning paper : GED-008


Pickup lens

8. EACH SETTING AND ADJUSTMENT

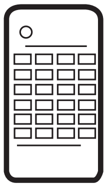
8.1 MODEL SETTING

[Purposes]

When the MAIN Assy and/or TUJB Assy that are(is) commonly used with another model are(is) replaced, they(it) must recognize the model of this unit.

Items to be set: The model number, destination, and region No. must be set.

[Tool to be used]



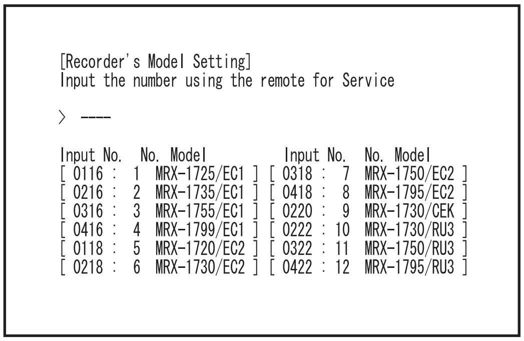
Remote control unit for servicing (GGF1381)

[Notes]

- Once the setting has been made, it can never be changed. Be sure to make the setting correctly.
- As this setting resets the Assy(s) in question to the factory-preset status, it is recommended that you obtain the customer's consent beforehand.

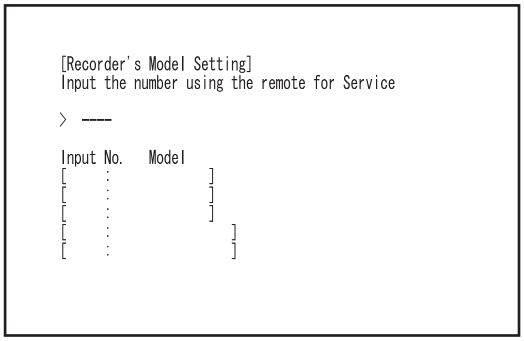
[Procedures]

1. After the unit is turned on, the model name for the original equipment manufacturer is displayed on the TV monitor screen. Input "9696" on the remote control unit for service to change it to the model name for Pioneer.



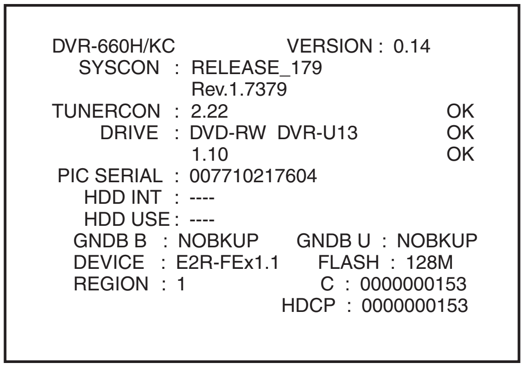
```
[Recorder's Model Setting]
Input the number using the remote for Service

> ----

Input No.  No. Model           Input No.  No. Model
[ 0116 :  1  MRX-1725/EC1 ] [ 0318 :  7  MRX-1750/EC2 ]
[ 0216 :  2  MRX-1735/EC1 ] [ 0418 :  8  MRX-1795/EC2 ]
[ 0316 :  3  MRX-1755/EC1 ] [ 0220 :  9  MRX-1730/CEK ]
[ 0416 :  4  MRX-1799/EC1 ] [ 0222 : 10  MRX-1730/RU3 ]
[ 0118 :  5  MRX-1720/EC2 ] [ 0322 : 11  MRX-1750/RU3 ]
[ 0218 :  6  MRX-1730/EC2 ] [ 0422 : 12  MRX-1795/RU3 ]
```

2. The following screen is displayed on TV monitor. Press four digits properly by using the remote control unit for service, according to the screen information.



```
[Recorder's Model Setting]
Input the number using the remote for Service

> ----

Input No.   Model
[     :            ]
[     :            ]
[     :            ]
[     :               ]
[     :               ]
```

3. Disconnect then reconnect the AC power cord of the unit. Be careful not to impart vibration to the unit immediately after the AC power cord is disconnected.



```
DVR-660H/KC                    VERSION :  0.14
    SYSCON  :  RELEASE_179
               Rev.1.7379
 TUNERCON   :  2.22                              OK
      DRIVE :  DVD-RW  DVR-U13                   OK
               1.10                              OK
 PIC SERIAL :  007710217604
    HDD INT :  ----
    HDD USE :  ----
   GNDB B   :  NOBKUP        GNDB U  :  NOBKUP
   DEVICE   :  E2R-FEx1.1     FLASH  :  128M
   REGION   :  1                   C  :  0000000153
                               HDCP  :  0000000153
```

4. Reset the recorder to all its factory settings.
   (Make sure that the recorder is on. Press and hold ■ (STOP) key and press ⏻ (STANDBY/ON) key on the front panel.)
   The recorder turns off with all settings reset.

5. Press [ESC] then [DISP] keys by using the remote control unit for servicing, and then confirm each Model Name.

6. End

8.2 LD POWER ADJUSTMENT

[Purposes]

If a combination of a main board and PU is changed, the LD power adjustment and adjustment for disc judgment needs to be made for a new combination of the main board and PU since the adjusted LD-power value becomes inappropriate for the new combination and stable playback and recording to disc becomes impossible.

[Tools to be used]

GGF1381 : Service Remote Control Unit
GGV1054 : CD-ROM (CDT-313)
GGV1036 : DVD-ROM DL (DVDT-002)
GGV1278 : Blank DVD-R (That's DR-C12WTY5PA)
GGV1282 : Blank DVD-RW (JVC VD-W120XH5)
GGV1284 : Blank DVD-RAM (maxell DRM120C.1P5S)

[Notes] Never turn the power off while any of the following operations is in progress:

- While laser diode (LD) power adjustment is being performed normally by the unit
- While adjustment for disc judgment is being performed

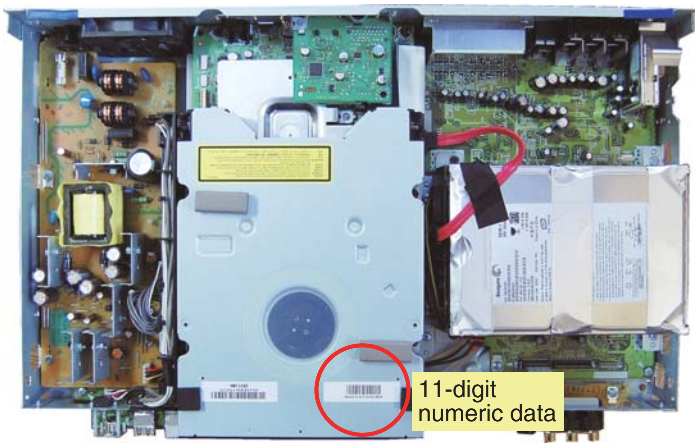
[Explanation on each adjustment mode]

- Drive Adjustment Mode

  This mode is used to select each mode for LD power adjustment.
  In this mode, you can confirm an 11-digit number provided for the LD power adjustment.
  The 11-digit number is stored in FLASH (IC1102) of the main board.

- PU Data Setting Mode

  This mode is used to enter an 11-digit number provided for the LD power adjustment.
  If you have changed a combination of the main board and PU, enter an 11-digit number marked on the case of a loader which is provided in pairs with PU.
  The LD power adjustment is made by using this 11-digit number.



- Power Adjustment Mode

  This mode is used to execute the LD power adjustment and to check the progress of the adjustment.
  In case an error occurs during the adjustment, you can also check the error details in this mode.

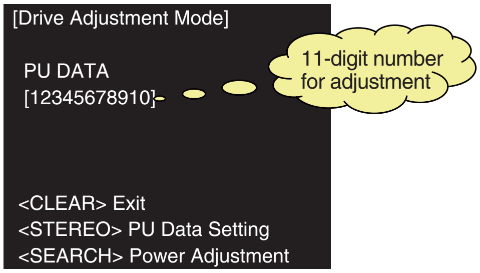
[How to enter Drive Adjustment Mode]

To enter the Drive Adjustment Mode, press [ESC]+[CX]+[1]+[0] on the remote control unit for service.

Though the LD power adjustment can be executed irrespective of the product functions, do not operate the product during the LD power adjustment to prevent misadjustment.

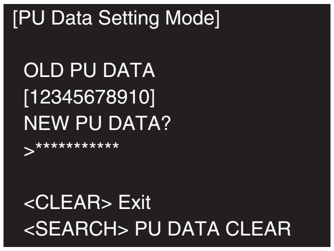
[Operation procedure]

1. When you enter the Drive Adjustment Mode, the following screen is displayed. On this screen, you can check 11-digit numeric data stored in FLASH of MAIN Assy, and can also switch over between each mode.



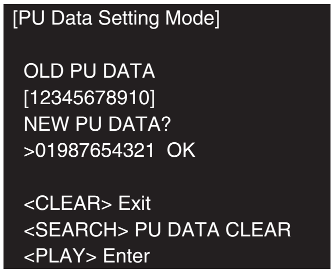
```
[Drive Adjustment Mode]

 PU DATA
 [12345678910]



<CLEAR> Exit
<STEREO> PU Data Setting
<SEARCH> Power Adjustment
```

2. To enter the PU Data Setting Mode, press [STEREO] on the remote control unit for service.
   Entering the PU Data Setting Mode displays the following screen.



```
[PU Data Setting Mode]

 OLD PU DATA
 [12345678910]
 NEW PU DATA?
 >***********

 <CLEAR> Exit
 <SEARCH> PU DATA CLEAR
```

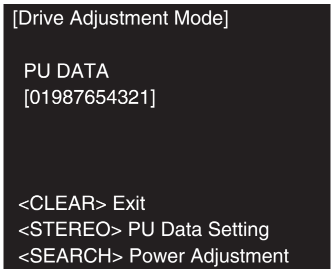
3. By pressing [0] to [9] keys on the remote control unit for service, enter an 11-digit number marked on the case of a loader provided in pairs with PU.
   Entering the 11-digit number displays the following screen.



```
[PU Data Setting Mode]

 OLD PU DATA
 [12345678910]
 NEW PU DATA?
 >01987654321  OK

 <CLEAR> Exit
 <SEARCH> PU DATA CLEAR
 <PLAY> Enter
```

4. To enter the 11-digit number, press [PLAY] on the remote control unit for service.
   The 11-digit number contains 2-digit checksum data to prevent input errors.
   The screens displayed for the correct/incorrect check sum are as follows.

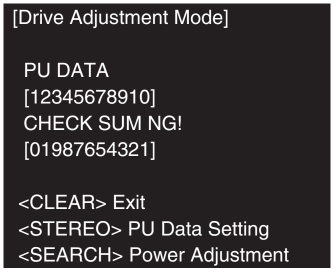
When the checksum is correct



```
[Drive Adjustment Mode]

 PU DATA
 [01987654321]



<CLEAR> Exit
<STEREO> PU Data Setting
<SEARCH> Power Adjustment
```

<ins>When the checksum is correct</ins>
Enter the Power Adjustment Mode and execute the LD power adjustment, as described in 5.

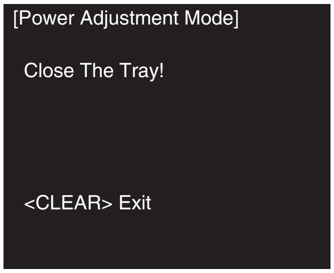
When the checksum is incorrect



```
[Drive Adjustment Mode]

 PU DATA
 [12345678910]
 CHECK SUM NG!
 [01987654321]

<CLEAR> Exit
<STEREO> PU Data Setting
<SEARCH> Power Adjustment
```

<ins>When the checksum is incorrect</ins>
The input data may be incorrect.
Return to 2 and enter the PU Data Setting Mode to re-enter the 11-digit number.

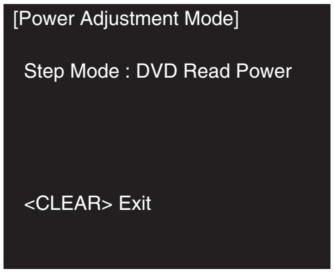
5. When the checksum is correct, enter the Power Adjustment Mode and execute the LD power adjustment.
To enter the Power Adjustment Mode, press [SEARCH] on the remote control unit for service.
Entering the Power Adjustment Mode displays the following screen and opens the tray automatically.



```
[Power Adjustment Mode]

  Close The Tray!




  <CLEAR> Exit
```

When the tray does not open
- Check if flexible cables and wire rods are connected properly.
- Errors in the loader, main board, or power source board are suspected.

6. Close the tray manually to execute the LD power adjustment mode.
You can check the progress of adjustment in the following screen.



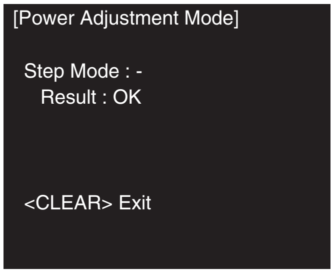
```
[Power Adjustment Mode]

  Step Mode : DVD Read Power




  <CLEAR> Exit
```

Explanation on Step Mode (time needed)
- DVD Read Power (approx. 10 sec.)
  Adjustment of DVD playback power
- RAM Read Power (approx. 20 sec.)
  Adjustment of RAM playback power
- DVD Write Power (approx. 40 sec.)
  Adjustment of DVD recording power
- CD Read Power (approx. 10 sec.)
  Adjustment of CD playback power
- DVD Disc Judgment (approx. 30 sec.)
  Adjustment for DVD disc judgment
- CD Disc Judgment (approx. 30 sec.)
  Adjustment for CD disc judgment

7. When DVD Disc Judgment is displayed in the Step Mode, the tray opens automatically.
Place DVDT-002 in the tray. The tray closes after 15 seconds from the time it opened.
If the adjustment for DVD disc judgment is completed successfully, CD Disc Judgment is displayed in the Step Mode.

If the adjustment for DVD disc judgment is not completed successfully
- A disc other than DVDT-002 may have been placed.
  Place DVDT-002 in the tray.

8. When CD Disc judgment is displayed in the Step Mode, the tray opens automatically.
Place CDT-313 in the tray. The tray closes after 15 seconds from the time it opened.
If the adjustment for CD disc judgment is completed successfully, the following screen is displayed.
Since the judgment is completed successfully, press [CLEAR] on the remote control unit for service and exit from the adjustment mode.



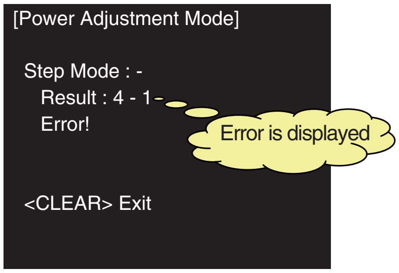
```
[Power Adjustment Mode]

  Step Mode : -
    Result : OK



  <CLEAR> Exit
```

If the adjustment for CD disc judgment is not completed successfully
- A disc other than CDT-313 may have been placed.
  Place CDT-313 in the tray.

9. Turn off the power.

[Error information]

In case of errors in the Power Adjustment Mode, the following screen is displayed.



[Power Adjustment Mode]

Step Mode : -
Result : 4 - 1
Error!

<CLEAR> Exit

About error indication

[Left number]

The left number indicates the Step Mode in which the error has occurred.

2: Adjustment of DVD playback power
3: Adjustment of RAM playback power
4: Adjustment of DVD recording power
5: Adjustment of CD playback power
6: Adjustment for DVD disc judgment
7: Adjustment for CD disc judgment

[Right number]

The right number indicates the error information.

1 or 2: Error in the adjustment process
(Details of error)
- The PU flexible cables may not have been connected.
- TM or main board error is suspected.

3: Forced termination
This number is displayed when you pressed [CLEAR] on the remote control unit for service and executed forced termination.

[Contents to check]

1. Record the data to a designated disc (DVD-R / DVD-RW / DVD-RAM) in real time.
2. Measure an error rate at a place where recording is executed.
   Measurement method: Refer to the simplified error rate measurement method in the Service Mode.
3. Check that the error rate is 3.3e-3 or below.

If the error rate is out of specification

- Check if there is any defect or fingerprint on the disc. If you find any problem with the disc, change the disc and try the check again.
- The power adjustment may have been unsuccessful.
  Try the power adjustment again.

If the above two do not solve the problem, a defect with MAIN Assy or PU is suspected.

8.3 CPRM ID NUMBER AND DATA SETTING

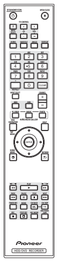
[Purposes]

For the DVD recorder,it is necessary with the recoding/playback of DVD-RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, cannot work with residual quantity 0:00 or operations in the future may not be guaranteed with RW disc. You will find the ID number to be set on the ID label on the rear panel.

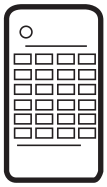
The Input is Necessary When:

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY or the HDD is exchanged.

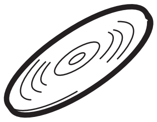
[Tools to be used]



Remote control unit supplied with the unit



Remote control unit for servicing (GGF1381)



DVD Recorder Data Disc (Type 2)

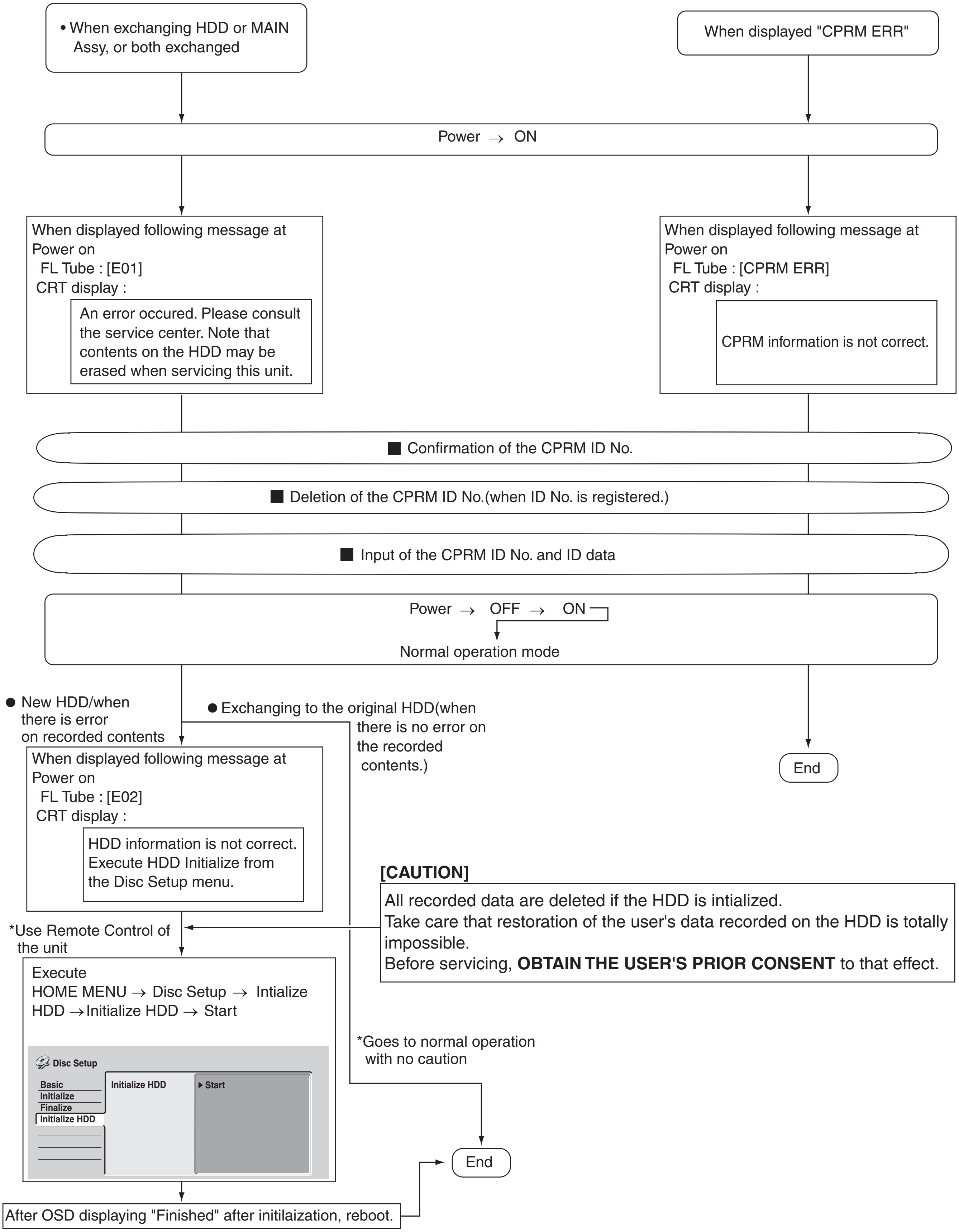
Be sure to use the latest disc (Type 2).
In Apr. 2008, the latest disc is GGV1321.

[Notes]

Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

- Input the ID number while the unit is in Stop mode.
- After the data are read from the data disc (Type 2), the disc will automatically be unloaded.

[1] Input Flow of the ID No. and ID Data When Exchanging HDD or MAIN Assy



- When exchanging HDD or MAIN Assy, or both exchanged

When displayed "CPRM ERR"

Power → ON

When displayed following message at Power on
FL Tube : [E01]
CRT display :
An error occured. Please consult the service center. Note that contents on the HDD may be erased when servicing this unit.

When displayed following message at Power on
FL Tube : [CPRM ERR]
CRT display :
CPRM information is not correct.

■ Confirmation of the CPRM ID No.

■ Deletion of the CPRM ID No.(when ID No. is registered.)

■ Input of the CPRM ID No. and ID data

Power → OFF → ON
Normal operation mode

● New HDD/when there is error on recorded contents

● Exchanging to the original HDD(when there is no error on the recorded contents.)

End

When displayed following message at Power on
FL Tube : [E02]
CRT display :
HDD information is not correct. Execute HDD Initialize from the Disc Setup menu.

[CAUTION]

All recorded data are deleted if the HDD is intialized.
Take care that restoration of the user's data recorded on the HDD is totally impossible.
Before servicing, **OBTAIN THE USER'S PRIOR CONSENT** to that effect.

*Use Remote Control of the unit

Execute
HOME MENU → Disc Setup → Intialize HDD → Initialize HDD → Start

*Goes to normal operation with no caution

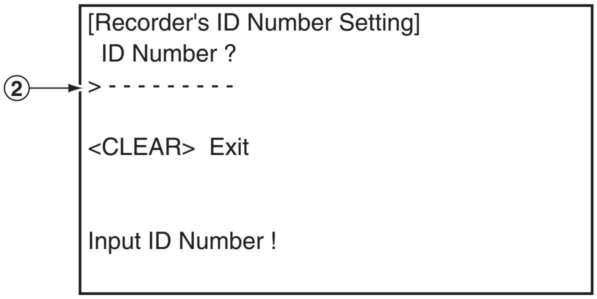
End

After OSD displaying "Finished" after initilaization, reboot.

[2] How to Input the ID Number and ID Data

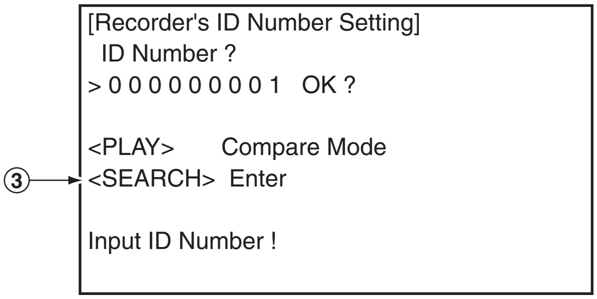
① To enter the input mode, press ESC + STEREO keys sequentially in a status with no ID number set, such as after FLASH-ROM downloading.

② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)



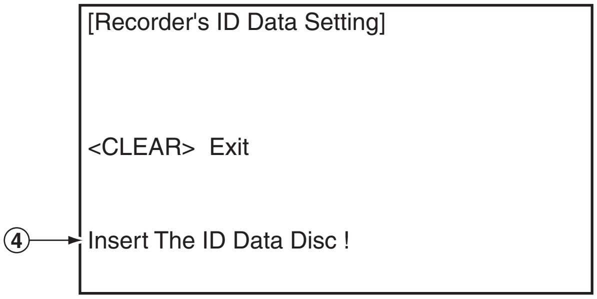
```
[Recorder's ID Number Setting]
  ID Number ?
> - - - - - - - - -

<CLEAR>  Exit


Input ID Number !
```

③ After inputting the number, press SEARCH keys to register the ID number.



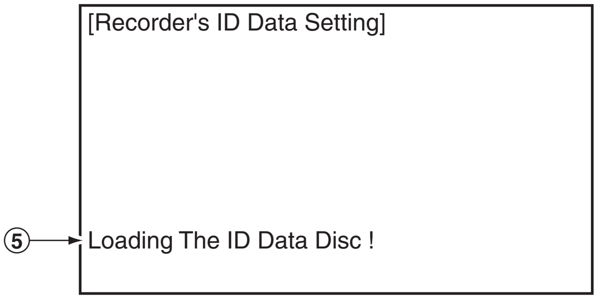
```
[Recorder's ID Number Setting]
  ID Number ?
> 0 0 0 0 0 0 0 0 1   OK ?

<PLAY>       Compare Mode
<SEARCH>  Enter

Input ID Number !
```

④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "■/⏏" on the player.



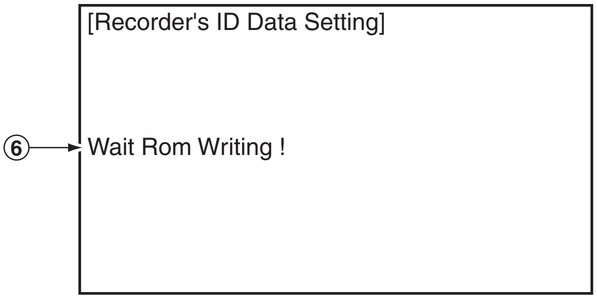
```
[Recorder's ID Data Setting]



<CLEAR>  Exit


Insert The ID Data Disc !
```

⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "LOAD ID.")



```
[Recorder's ID Data Setting]






Loading The ID Data Disc !
```

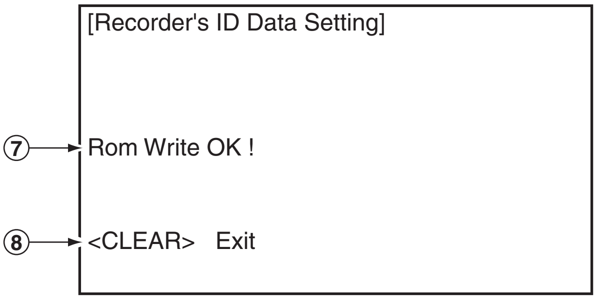
⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WRITE ID.")



```
[Recorder's ID Data Setting]



Wait Rom Writing !
```

⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID OK.")

⑧ After confirming this message, press CLEAR key to exit the input mode.



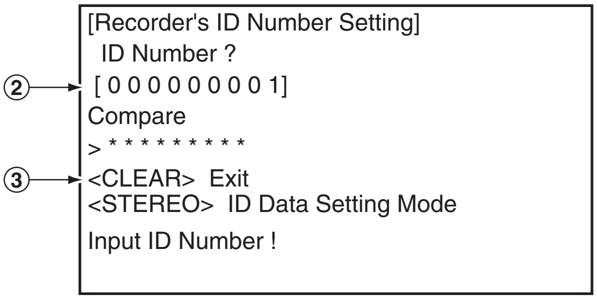
```
[Recorder's ID Data Setting]



Rom Write OK !


<CLEAR>   Exit
```

[How to Confirm the ID Number]

① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.

③ To exit this mode, press CLEAR key.

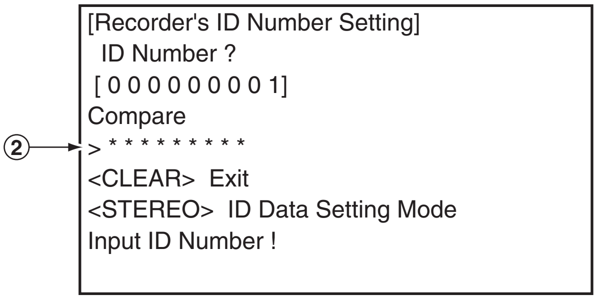


```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR>  Exit
<STEREO>  ID Data Setting Mode
Input ID Number !
```

[How to Clear the ID Number]

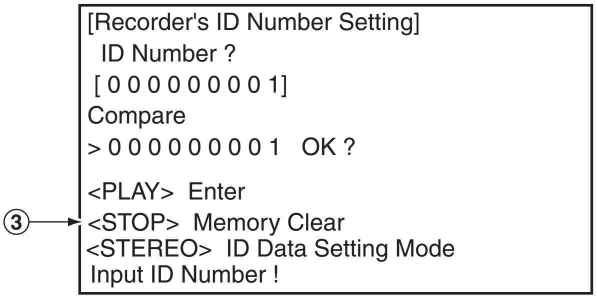
① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② Input the same number as the ID number you have set.



```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> * * * * * * * * *
<CLEAR>  Exit
<STEREO>  ID Data Setting Mode
Input ID Number !
```

③ After inputting the number, press STOP key.
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step ②.
(STOP key is not accepted until 9 digits are entered.)



```
[Recorder's ID Number Setting]
  ID Number ?
 [ 0 0 0 0 0 0 0 0 1]
Compare
> 0 0 0 0 0 0 0 0 1   OK ?
<PLAY>  Enter
<STOP>  Memory Clear
<STEREO>  ID Data Setting Mode
Input ID Number !
```

8.4 FIRMWARE UPDATE METHOD

[Purposes]

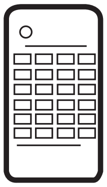
1. When the main board is replaced, the firmware versions for the system control computer, drive, and the TUFL microcomputer do not match, and operations of the unit may be destabilized.
   To match the versions for the above three, firmware downloading is necessary in the following cases:
   ① After the model setting
   ② When NG is displayed on the first screen (version information, etc.) of Service mode
   ③ After changing MAIN Assy or TUJB Assy

2. Rewriting the firmware to the latest version may ameliorate the symptoms claimed by the customer.

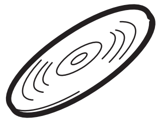
There are the following two methods for update: disc update and serial update

[1] Disc Update

[Tools to be used]



Remote control unit
for servicing
(GGF1381)



Firmware Update Disc
(Refer to Page 90.)

[Notes]

Be sure NOT to turn off the unit during update.
If the unit is turned off during update, the SYSCON, TUNERCON, DRIVE programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again.

[Procedure] ① Open a disc tray by pressing the "OPEN/CLOSE" button.

② Put the update disc on the tray. Press a " OPEN/CLOSE " button while pressing a "Record Stop" button on the frontpanel.
* The disc tray closes automatically and the disc is loaded.
* The disc tray opens automatically after loading.

FL display

LOAD

↓

DISC DWLD

③ Take out the Download Disc.

↓

DOWNLOAD-2 SYSCON download

↓

DOWNLOAD-3 FrontEnd download

↓

DOWNLOAD-4 TunerCon download

* After update is completed, the power turns off, and a disc tray closes automatically.
* It takes for about 7-8 minutes until update is completed.

④ The power turns on and press a " ESC " button, then press " DISP " button on the remote control unit for servicing.
⑤ Confirm a firmware release version.
⑥ Press " ESC " button on the remote control unit for servicing in order to exit the test mode.

[Tips]

(1) If the power is not correctly turned on or when the power is shut off during update, proceed as follows before performing update again:

- In a case where update was incorrectly terminated while "DOWNLOAD-2" was displayed on the FL display:
  The SYSCON program will not function correctly.
  If the program cannot be update from the disc or through serial communication, replace the MAIN Assy.

- In a case where update was incorrectly terminated while "DOWNLOAD-3" was displayed on the FL display:
  The DRIVE program will not function correctly.
  If the program cannot be update from the disc, replace the MAIN Assy.

- In a case where update was incorrectly terminated while "DOWNLOAD-4" was displayed on the FL display
  The program for the tuner microcomputer will not function correctly.
  If the program cannot be update from the disc, replace the TUNERCON microcomputer (IC101 : TUJB Assy).

[2] Serial Update

[Purposes]

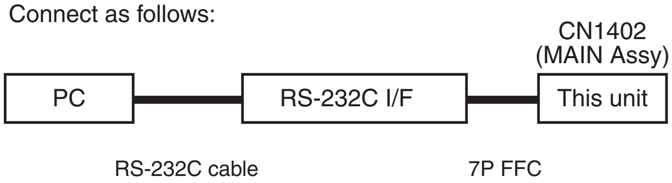
1. This method is used when disc update fails.

[Tools to be used]

- * PC with serial port
- * RS-232C straight cable
- * RS-232C I/F jig (GGF1348)
- * 7P FFC (VDA1681)
- * Update program (UFU.exe)
- * Firmware

[Connection]

Connect as follows:



[Procedures]

① Connect the 232C I/F jigs above way.

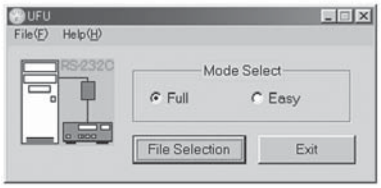
② Turn on the PC and start the " UFU.exe ".

③ Select the Firmware file. ("sz0" file)

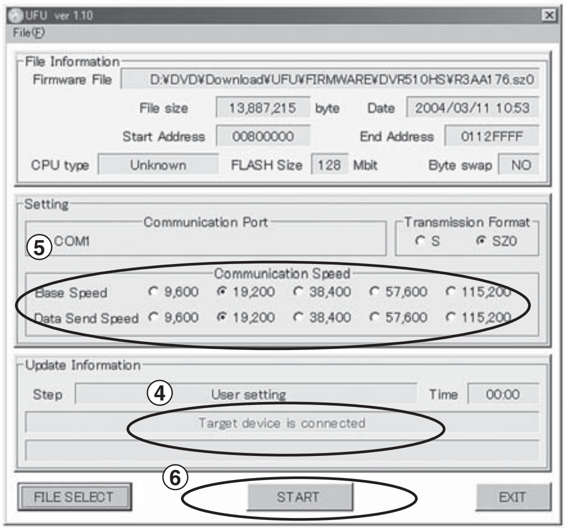
④ Turn the DVD recorder on and start the update program.
" Target Device is connected " is appeared on the screen.

⑤ Select the Communication Speed (Baud Rate)
a) Base Speed 115,200
b) Data Send Speed 115,200

⑥ START
- Even if you click "START" button, sometimes "Communication Error" may come out one to twice, and update may fail.
  In this case, please click "START" again.
- Other factors can be considerd if update fails 3 times or more.
- And it takes about 40 minutes for updating the firmware.



Mode Select: ● Full ○ Easy



File Information
Firmware File D:¥DVD¥Download¥UFU¥FIRMWARE¥DVR510HS¥R3AA176.sz0
File size 13,887,215 byte Date 2004/03/11 10:53
Start Address 00800000 End Address 0112FFFF
CPU type Unknown FLASH Size 128 Mbit Byte swap NO

Setting
Communication Port COM1
Transmission Format ○ S ● SZ0
Communication Speed
Base Speed ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200
Data Send Speed ○ 9,600 ● 19,200 ○ 38,400 ○ 57,600 ○ 115,200

Update Information
Step User setting Time 00:00
Target device is connected

■ HOW TO PRODUCE A DISC FOR UPDATING

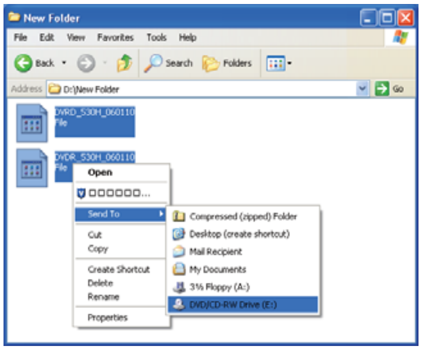
Items necessary for producing a disc (CD-R or CD-RW) for updating

- CD-R/RW drive
- CD-R/RW writing software
- Blank CD-R or CD-RW disc
- Supported OS: Windows 98/98SE/ME/2000/XP *

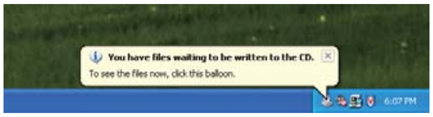
* Other OS's, such as Linux and MacOS, cannot be used.

How to produce a disc for updating

1. Right-click on the icon of the file for updating that you downloaded to any folder and select "Send To" in order to send the file to the drive to be used for writing to the disc.
   * Do NOT change the filename.


New Folder
File Edit View Favorites Tools Help
Back Search Folders
Address D:\New Folder
Go
DVRD_530H_060110
File
DVDR_530H_060110
File
Open
Send To
Cut
Copy
Create Shortcut
Delete
Rename
Properties
Compressed (zipped) Folder
Desktop (create shortcut)
Mail Recipient
My Documents
3½ Floppy (A:)
DVD/CD-RW Drive (E:)

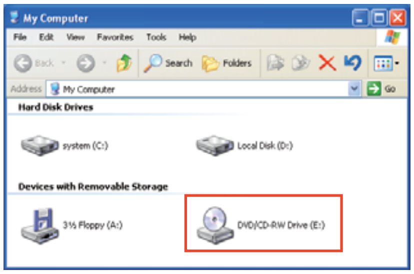
2. An icon appears at the right of the taskbar on the bottom of the screen. Click on it.



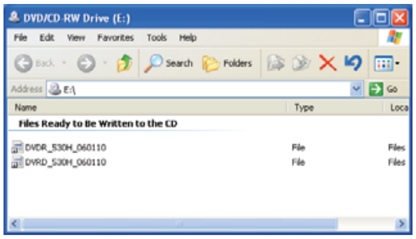
You have files waiting to be written to the CD.

To see the files now, click this balloon.

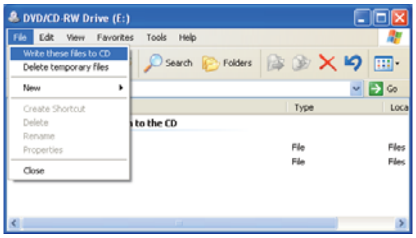
* If the icon does not appear, select the drive to be used for writing to the disc from My Computer.


My Computer
File Edit View Favorites Tools Help
Back Search Folders
Address My Computer
Go
Hard Disk Drives
system (C:)
Local Disk (D:)
Devices with Removable Storage
3½ Floppy (A:)
DVD/CD-RW Drive (E:)

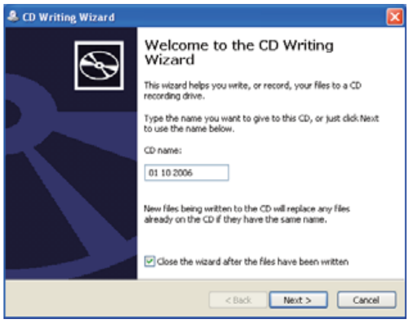
When the PC is ready for writing, the window shown will be displayed.


DVD/CD-RW Drive (E:)
File Edit View Favorites Tools Help
Back Search Folders
Address E:\
Go
Name
Type
Loca
Files Ready to Be Written to the CD
DVDR_530H_060110 File Files
DVRD_530H_060110 File Files

3. Load a CD-R/RW disc in the drive. Select File then "Write these files to CD" * Be sure to use a blank disc.
   * Scratches or dirt on the disc may result in a failure in writing.


DVD/CD-RW Drive (E:)
File Edit View Favorites Tools Help
Write these files to CD
Delete temporary files
New
Create Shortcut
Delete
Rename
Properties
Close
Search Folders
Go
Type
Loca
to the CD
File Files
File Files

4. The Writing to CD Wizard will be displayed. Click on Next to start writing.


CD Writing Wizard

Welcome to the CD Writing Wizard

This wizard helps you write, or record, your files to a CD recording drive.

Type the name you want to give to this CD, or just click Next to use the name below.

CD name: 01 10 2006

New files being written to the CD will replace any files already on the CD if they have the same name.

☑ Close the wizard after the files have been written

< Back
Next >
Cancel

5. When writing is finished, the disc will be ejected. Production of the disc for updating is completed.

8.5 GRACENOTE DATABASE UPDATE METHOD (DVR-660H-K, 560-K ONLY)

[Purposes]

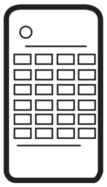
1. Gracenote DB should be stored in build-in HDD to search for audio CD titles.
   After replacing the HDD, it is necessary to download the Gracenote DB.

2. While the GUI screen is not displayed, press the ESC then DISP keys.
   When “NOBKUP” was displayed on the first screen (version information, etc.), update the latest Gracenote Database (GNDB) information.

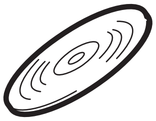
3. Rewriting the database to the latest version may ameliorate the symptoms claimed by the customer.
   (Confirm that the GNDB B and GNDB U are latest version.)

[1] Disc Update

[Tools to be used]



Remote control unit
for servicing
(GGF1381)



Gracenote DB
Update Disc
(Refer to Page 90.)

[Notes]

Be sure NOT to turn off the unit during update.
If the unit is turned off during update, the GNDB programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again.

[Procedure] ① Open a disc tray by pressing the "OPEN/CLOSE" button.

② Put the update disc on the tray. Press a " OPEN/CLOSE " button while pressing a "Record Stop" button on the frontpanel.
* The disc tray closes automatically and the disc is loaded.

FL display

LOAD

DISC DWLD

DOWNLOAD-1 GNDB download

*After update is completed, the disc tray opens automatically.
At this time, "DOWNLOAD-1" or "CLOCK" is displayed on the FL display.
*It takes for about 15 minutes until update is completed.

③ Take out the Update Disc.

④ The power turns off. (An effective key is "STANDBY/ON" key.)

⑤ The power turns on and press a " ESC " button, then press " DISP " button on the remote control unit for servicing.

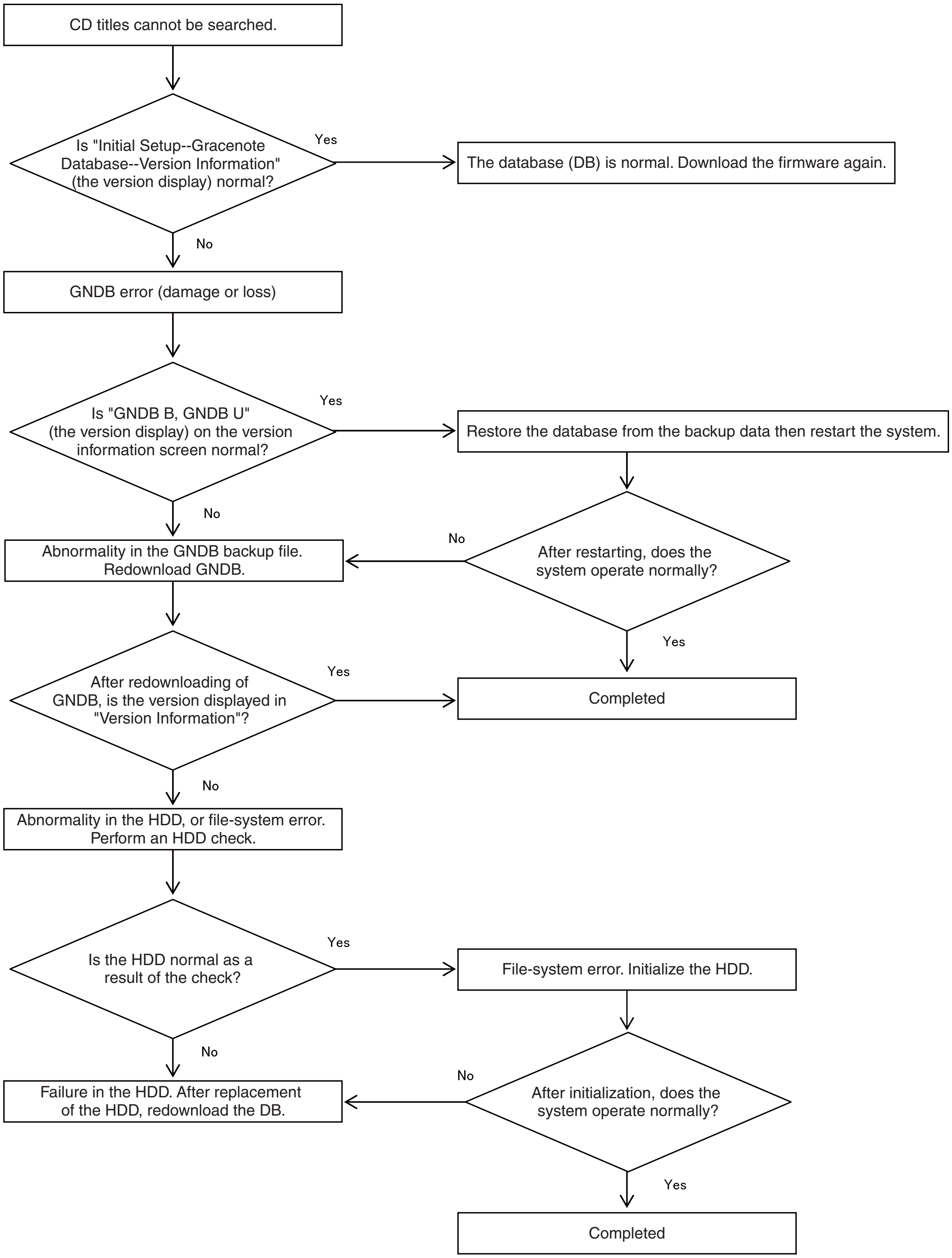
⑥ Confirm a GNDB B and GNDB U version.

⑦ Press " ESC " button on the remote control unit for servicing in order to exit the test mode.

[Tips]

Note: If the AC power fails during updating, the HDD may be damaged.

[Diagnosis Flowchart]

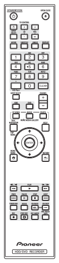

CD titles cannot be searched.
Is "Initial Setup--Gracenote Database--Version Information" (the version display) normal?
Yes
The database (DB) is normal. Download the firmware again.
No
GNDB error (damage or loss)
Is "GNDB B, GNDB U" (the version display) on the version information screen normal?
Yes
Restore the database from the backup data then restart the system.
No
Abnormality in the GNDB backup file. Redownload GNDB.
No
After restarting, does the system operate normally?
Yes
After redownloading of GNDB, is the version displayed in "Version Information"?
Yes
Completed
No
Abnormality in the HDD, or file-system error. Perform an HDD check.
Is the HDD normal as a result of the check?
Yes
File-system error. Initialize the HDD.
No
Failure in the HDD. After replacement of the HDD, redownload the DB.
No
After initialization, does the system operate normally?
Yes
Completed

8.6 VIDEO ADJUSTMENT FOR SPECIFIC AREA

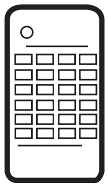
[Purposes]

Depending on the area, if a flicker may appear in a picture received by the tuner, it can be corrected or reduced with this setting.

[Tools to be used]



Remote control unit supplied with the unit



Remote control unit for servicing (GGF1381)

[1] Specific-Channel Setting Mode

In this mode, specific settings can be made for up to 12 channels.
For channels that do not have specific settings, the settings of General Setting mode are applied.

[How to enter this mode]

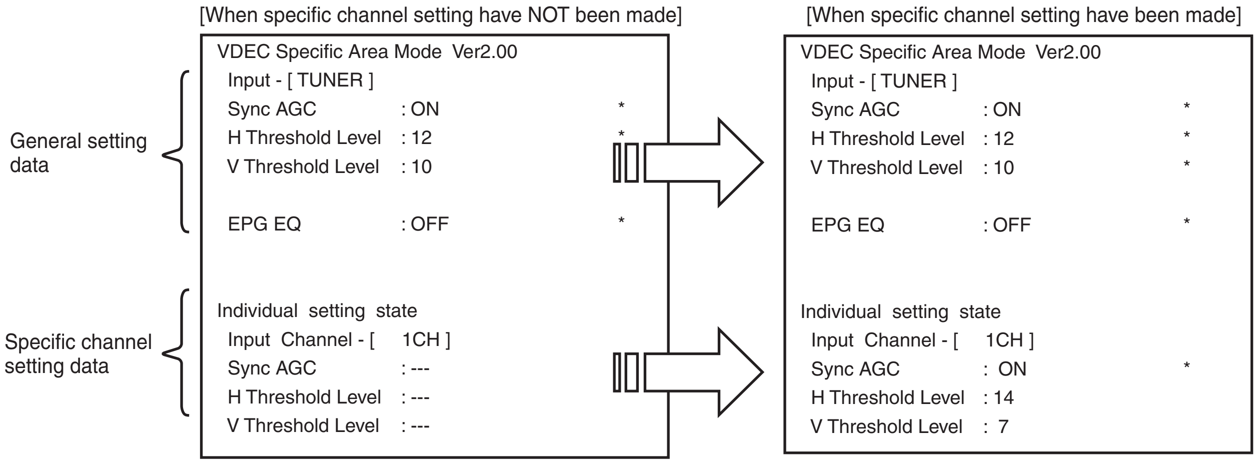
① Select a channel or line input (L1-L3) on which a specific setting is to be made.
② Press the ESC then CHP/TIM keys on the remote control unit for servicing. "General Setting mode" is displayed.
③ Press the DIG/ANA key in General Setting mode. Specific-Channel Setting mode is entered.

[How to exit] Press the ESC key on the remote control unit for servicing to return the Normal mode.

[Note] Setting is in effect only during recording/playback stop.

[Setting examples]

The setting examples in Specific-Channel Setting mode are shown below.
For details on each setting item, see "Table 1: Key operations in Specific-Area Setting mode."



[When specific channel setting have NOT been made]

```
VDEC Specific Area Mode  Ver2.00
  Input - [ TUNER ]
  Sync AGC           : ON          *
  H Threshold Level  : 12          *
  V Threshold Level  : 10

  EPG EQ             : OFF         *


Individual  setting  state
  Input  Channel - [   1CH ]
  Sync AGC           : ---
  H Threshold Level  : ---
  V Threshold Level  : ---
```

[When specific channel setting have been made]

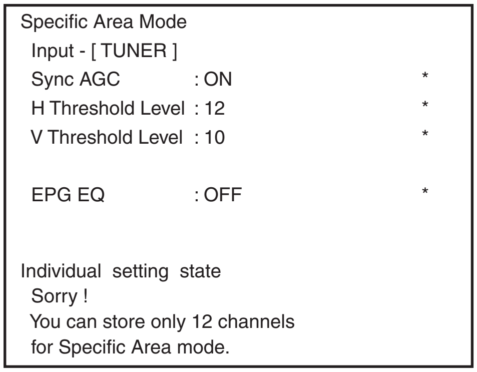
```
VDEC Specific Area Mode  Ver2.00
  Input - [ TUNER ]
  Sync AGC           : ON          *
  H Threshold Level  : 12          *
  V Threshold Level  : 10          *

  EPG EQ             : OFF         *


Individual  setting  state
  Input  Channel - [   1CH ]
  Sync AGC           :  ON         *
  H Threshold Level  : 14
  V Threshold Level  :  7
```

[Tips]

- If a channel that does not have specific settings is displayed, the setting figures are displayed as hyphens (- -).
- If the setting figures are not displayed as hyphens, those settings have been specifically set even if they are identical to the default settings or those of General Setting mode.
- The setting indicated with an asterisk (*) is the default.
- The channels to be indicated for "Input Channel" are as shown below:
  Line inputs: L1-L3, DV (DV is not valid for specific-area settings.)
  Tuner channels: Channels received by the tuner (channels to be set in Specific-Channel Setting mode, etc.)

[Tips]

- Indication when the maximum number (12) of channels have individual settings
  If a channel that does not have specific settings is currently selected, the indication will be as shown below, and individual data items cannot be set for that channel. To set individual data items for the currently selected channel, you must clear any specific-channel settings for one or more channels.



```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON          *
  H Threshold Level : 12          *
  V Threshold Level : 10          *

  EPG EQ            : OFF         *


Individual  setting  state
  Sorry !
  You can store only 12 channels
  for Specific Area mode.
```

[H Threshold Level]
The slice level setting for the horizontal(H)-sync separation circuit can be changed. By your changing the slice level, horizontal sync disturbance may be ameliorated. Set the slice level to a value with which the least sync disturbance is seen.

[V Threshold Level]
The slice level setting for the vertical(V)-sync separation circuit can be changed. By your changing the slice level, vertical sync disturbance may be ameliorated. Set the slice level to a value with which the least sync disturbance is seen.

[Receiver sensitivity setting for an electronic program guide (EPG)]
The sensitivity when receiving an electronic program guide can be selected. Set the sensitivity to "High" only if reception is unstable.

[2] General Setting Mode

[How to enter this mode]

- To shift from Specific-Channel Setting mode:
  Each time the DIG/ANA key is pressed, Specific-Channel Setting mode and General Setting mode are alternately selected.

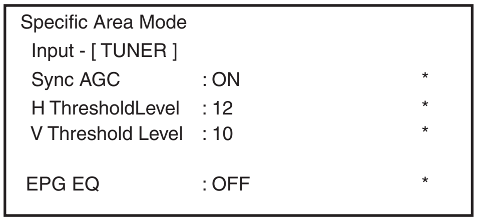
- To shift from Normal mode (recording/playback stop):
  Press the ESC then CHP/TIM keys.

[How to exit] Press the ESC key to return the normal mode.

[Setting examples]

Show setting example on the General Setting mode screen to the following.
Regarding setting of actual each item, refer to table 1 (key operations in specific-area setting mode).

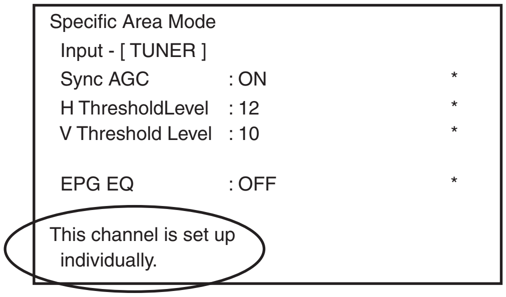
[General Setting mode screen]



```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON          *
  H ThresholdLevel  : 12          *
  V Threshold Level : 10          *

 EPG EQ             : OFF         *
```

*: Setting is the default.

[Display in General Setting mode when the channel currently displayed has specific settings]



```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON          *
  H ThresholdLevel  : 12          *
  V Threshold Level : 10          *

  EPG EQ            : OFF         *

This channel is set up
  individually.
```

[Tips]

- General Setting mode can be entered only during recording/playback stop.
- The currently selected input mode (TUNER or LINE) is displayed for "Input."
- If L1, L2, L3, or DV is selected for input, general settings for the line input can be made (DV is not valid for specific-area settings), and if TUNER is selected, general settings for the tuner input can be made.

Table 1: key operations in specific-Area setting mode (1/2)
Key operations in Specific Area Setting mode of the remote control units are shown in the table below
(the keys are of the remote control unit for servicing unless otherwise stated):

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[DIG/ANA]	Switches General setting mode and Specific setting mode.	–	–	○	○
[INPUT SELECT], [CHANNEL +/-] (Remote control unit supplied with this unit)	Switches inputs or channels.	–	–	○	○
[SIDE A] , [SIDE B]	Sets SyncAGC.	ON(*) / OFF	ON : The sync level is set to an appropriate value. OFF : Cancel the Sync AGC.	○	○
[Rev ×3], [×3 Fwd]	Sets H Threshold.	0 – 15 (Default : 12)	[Rev ×3] : Decreasing 1 by 1 in the range 0 to 15. (Cyclic operation) [×3 Fwd] : Increasing 1 by 1 in the range 0 to 15. (Cyclic operation)	○	○
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets V Threshold Level.	0 – 15 (Default : 10)	[Rev CHAPTER SKIP] : Decreasing 1 by 1 in the range 0 to 15. (Cyclic operation) [CHAPTER SKIP Fwd] : Increasing 1 by 1 in the range 0 to 15. (Cyclic operation)	○	○

Table 1: key operations in specific-Area setting mode (2/2)

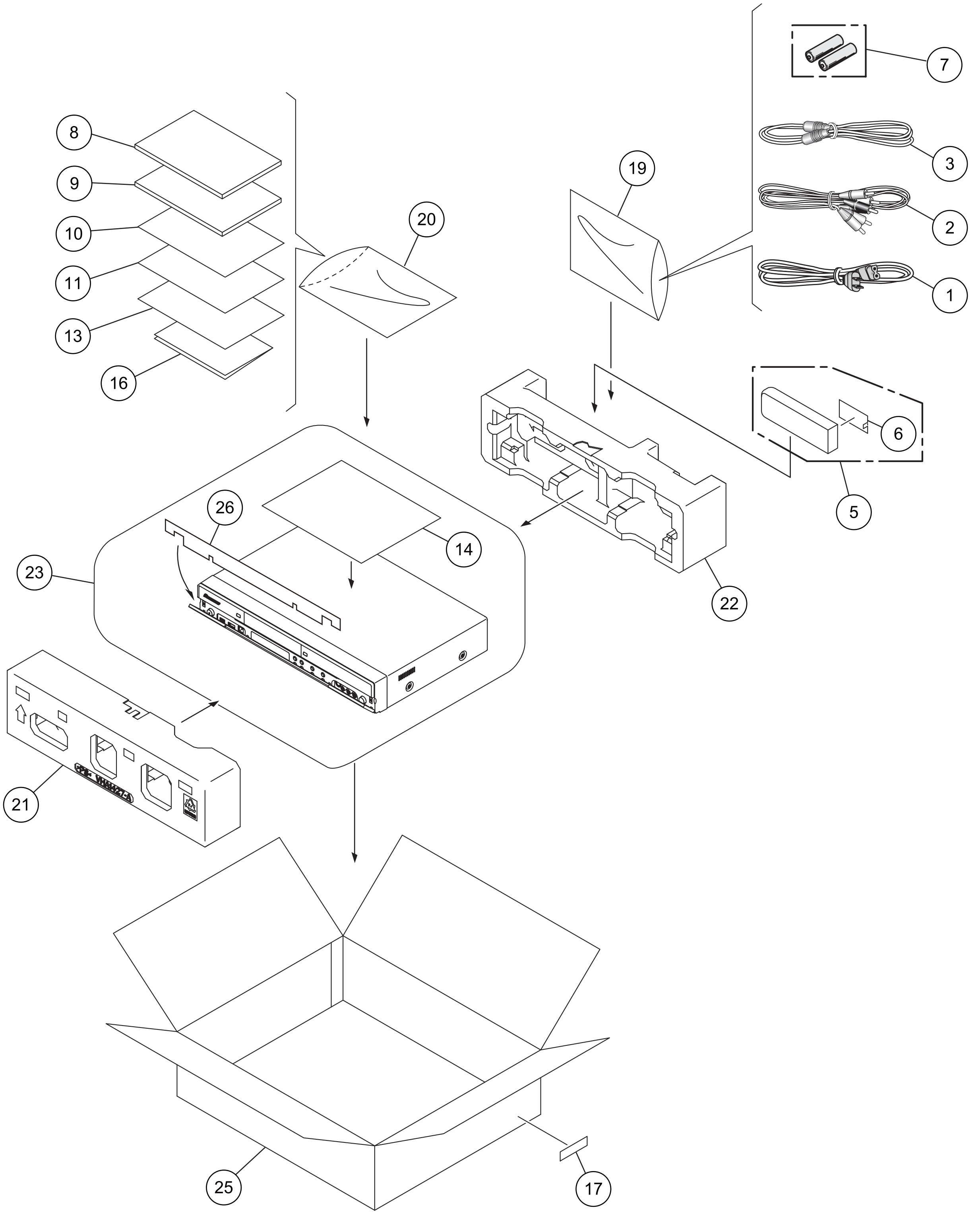
Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[PLAY]	All channels that have specific setting data will be canceled, and the specific data will be initialized.	–	The General Setting data will not be changed.	○	×
[CLEAR]	Specific-Channel Setting mode: If the currently selected channel has its specific setting, that setting will be canceled. (By canceling the specific setting for that channel, the number of remaining channels that can have specific settings will be increased by one.) General Setting mode: Settings of General Setting mode are initialized.	–	Specific-Channel Setting mode: All specific data are initialized. The General Setting data will not be changed. General Setting mode: All general setting data are reset to default. The specific setting data will not be changed (will be retained).	○	○
[PAUSE]	The specific-channel-setting data for the currently selected channel are reset to default.	–	The General Setting data will not be changed (will be retained).	○	×
[ESC]	To quit Setting mode for a specific area and clear the on-screen display.	–	–	○	○

Notes:
- Each key listed in Table 1 above is active only while the tuner is completely stopped.
- The setting values will not be reset to default even if resetting to the start at the time of shipment is performed.

9. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

9.1 PACKING SECTION



(1) PACKING SECTION PARTS LIST

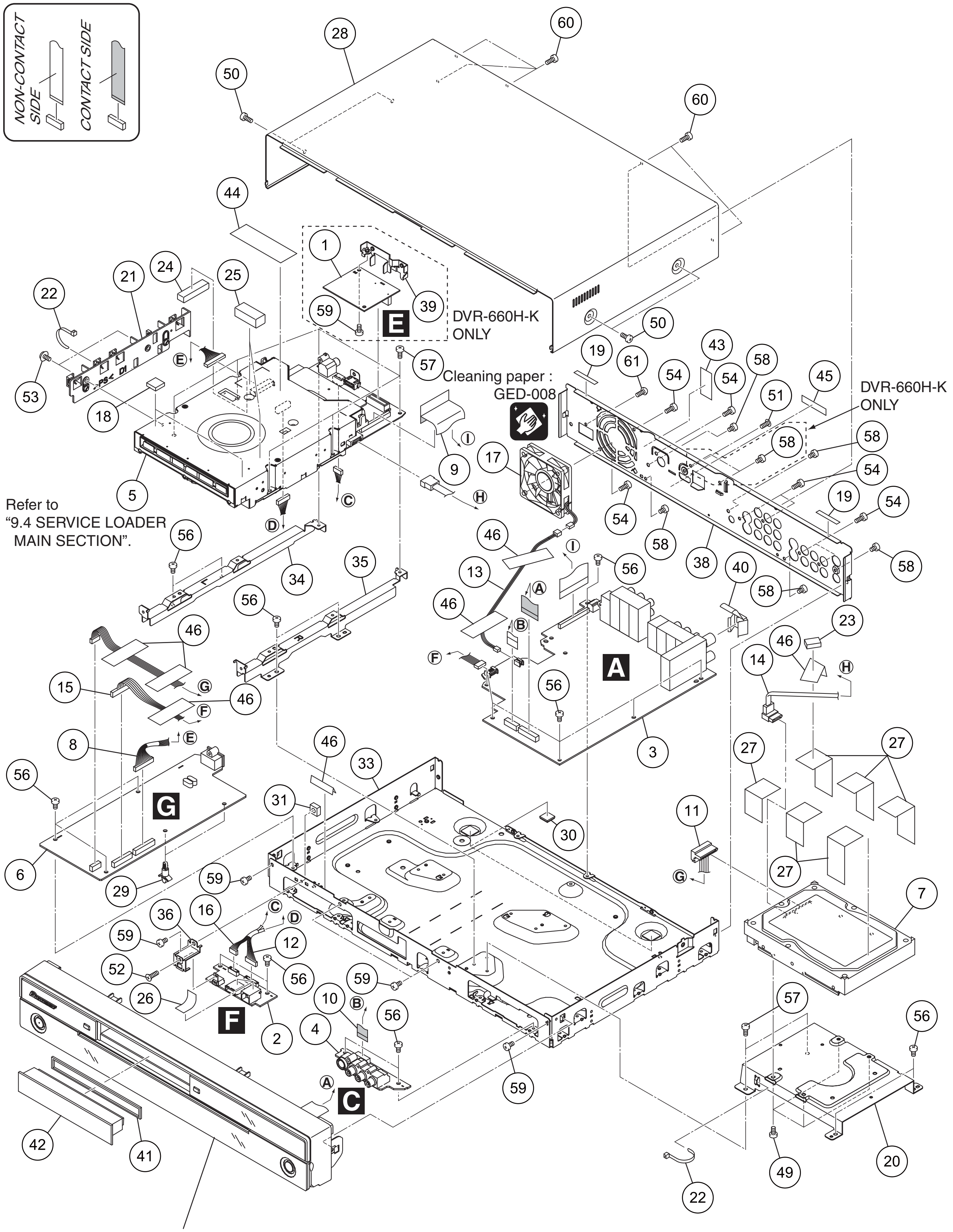
Mark	No.	Description	Part No.
⚠	1	Power Cable	ADG7021
	2	Audio / Video Cable (1.5 m) (red/white/yellow)	VDE1077
	3	RF Antenna Cable	VDE1088
	4	• • • • •	
	5	Remote Control	VXX3288
	6	Battery Cover	VZN1025
NSP	7	Dry Cell Batteries (AA/R6P)	VEM1010
	8	Operating Instructions (English)	VRB1490
	9	Operating Instructions (French)	VRC1461
	10	Quick Start Guide (English)	VRG1025
	11	Quick Start Guide (French)	VRG1026
	12	• • • • •	
	13	HDD Caution 8L	VRR1071
	14	HDD Caution 8L B	VRR1076
	15	• • • • •	
NSP	16	Warranty Card	ARY7045
NSP	17	Serial Label S	VRW2188
	18	• • • • •	
	19	Polyethylene Bag B5	VHL1088
	20	Polyethylene Bag B5	VHL1088
	21	Front Pad	VHA1427
	22	Rear Pad	VHA1428
	23	Mirror Mat	VHL1095
	24	• • • • •	
	25	Packing Case	See Contrast table (2)
	26	Mirror Sheet	VHL1117

(2) CONTRAST TABLE

DVR-660H-K/KCXV, DVR-560H-K/KCXV and DVR-460H-K/KCXV are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-660H-K /KCXV	DVR-560H-K /KCXV	DVR-460H-K /KCXV
	25	Packing Case	YHG1012	YHG1013	YHG1033

9.2 EXTERIOR SECTION


NON-CONTACT SIDE
CONTACT SIDE
28
60
50
60
44
1
39
59
E
DVR-660H-K ONLY
24
21
25
22
53
18
5
57
E
Cleaning paper : GED-008
19
61
43
54
54
58
45
51
50
DVR-660H-K ONLY
58
58
54
9
I
17
H
C
D
54
58
19
54
58
38
58
40
56
34
35
46
I
13
A
56
46
B
46
23
F
14
H
A
15
G
46
F
56
3
8
E
46
33
56
27
27
G
31
30
11
G
6
29
59
27
7
36
16
C
D
12
59
52
56
59
26
10
B
56
57
56
4
F
2
A
C
59
42
41
49
20
22

Refer to
"9.4 SERVICE LOADER
MAIN SECTION".

Refer to
"9.3 FRONT PANEL SECTION

(1) EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	ETAB Assy	See Contrast table (2)
	2	SERVICE DVUB Assy	YXX1001
	3	SERVICE TUJB Assy	YXX1011
	4	SERVICE FRJB Assy	YXX1004
NSP	5	SERVICE LOADER MAIN	See Contrast table (2)
⚠	6	POWER SUPPLY Assy	VWR1408
	7	HDD	See Contrast table (2)
	8	Connector Assy	PF13PP-S17
	9	Flexible Cable (40P)	VDA2159
	10	Flexible Cable (11P)	VDA2162
	11	Housing Assy (4P)	VKP2389
	12	Housing Assy (10P)	VKP2391
	13	Housing Assy (2P)	VKP2392
	14	SATA Cable	YDX1001
	15	Housing Assy (TUJB)	YKP1001
	16	Housing Assy (6P)	YKP1002
	17	DC Fan Motor 60	VXM1123
	18	Spacer Cushion	VEB1400
	19	Cushion	VEB1401
NSP	20	HDD Stay	VNE2450
	21	Cord Holder	VNL1971
NSP	22	Binder (BK-1)	ZCA-BK1
	23	Rubber Spacer	VEB1378
	24	Rubber Spacer	VEB1408
	25	Gasket 30 x 10T	VEC2522
	26	Aluminum Tape 13 x 25	VEF1068
	27	Aluminum Tape 70 x 19	YEF1001
	28	Bonnet S	YXX1009
	29	PCB Support	AEC1215
	30	Rubber Foot	VEB1349

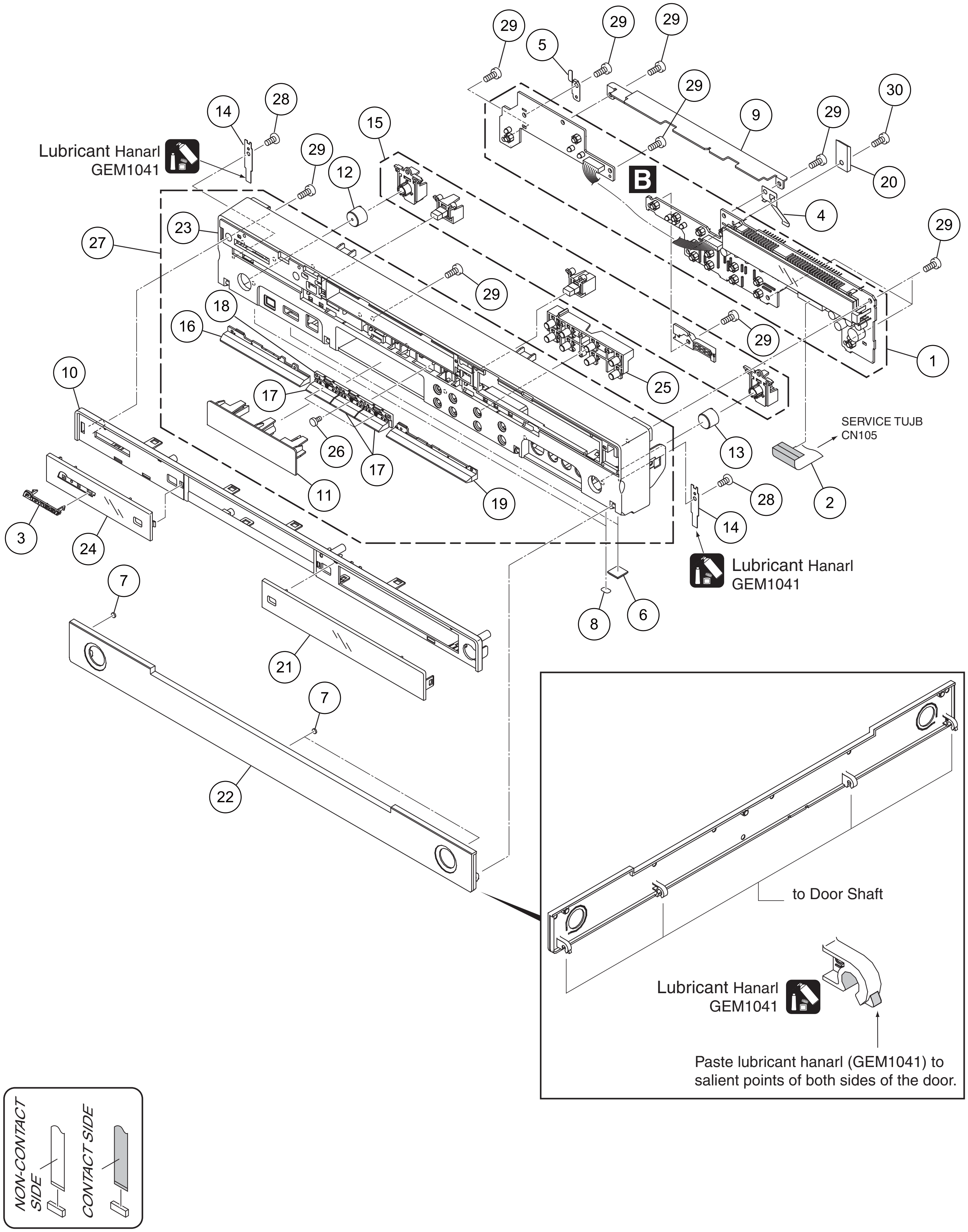
Mark	No.	Description	Part No.
	31	Screw Guard	VEB1399
	32	• • • • •	
NSP	33	Base Chassis	VNB1057
NSP	34	Writer Stay L	VNE2448
NSP	35	Writer Stay R	VNE2449
	36	DV Angle	VNE2474
	37	• • • • •	
	38	Rear Panel	See Contrast table (2)
	39	LAN Angle	See Contrast table (2)
	40	Earth Plate TU	VBK1173
	41	Tray Sheet	VEC2551
	42	Tray Panel	YNK1038
NSP	43	ID Label Assy	See Contrast table (2)
	44	Laser Caution Label	VRW2262
NSP	45	Serial Label S	VRW2188
NSP	46	Tape	ZTA-156A-19
	47	• • • • •	
	48	• • • • •	
	49	#6-32 Screw	DBA1125
	50	Screw	BSZ30P060FTC
	51	Screw M3 x 8	VBA1088
	52	Screw M3 x 8	VBA1088
	53	Screw	AMZ30P060FTC
	54	Screw	BPZ30P080FTC
	55	Screw	BPZ30P080FTC
	56	Screw	BSR30P060FTC
	57	Screw	BSR30P080FTB
	58	Screw	BPZ30P040FTC
	59	Screw	BSZ30P040FTC
	60	Screw	BSZ30P060FBN
	61	Screw	PBZ30P080FTC

(2) CONTRAST TABLE

DVR-660H-K/KCXV, DVR-560H-K/KCXV and DVR-460H-K/KCXV are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-660H-K /KCXV	DVR-560H-K /KCXV	DVR-460H-K /KCXV
	1	ETAB Assy	VWV2344	Not used	Not used
NSP	5	SERVICE LOADER MAIN	VXU1014	VXU1013	VXU1013
	7	HDD	VXF1131	VXF1152	VXF1152
	38	Rear Panel	YNA1034	YNA1035	YNA1043
	39	LAN Angle	YNE1001	Not used	Not used
NSP	43	ID Label Assy	VXW1019	VXW1015	VXW1015

9.3 FRONT PANEL SECTION


29
5
29
29
29
30
9
29
20
B
4
29
1
14
28
Lubricant Hanarl
GEM1041
15
29
12
23
27
29
18
16
25
29
10
17
26
17
13
11
19
SERVICE TUJB
CN105
2
28
14
3
24
Lubricant Hanarl
GEM1041
7
8
6
21
7
22
to Door Shaft
Lubricant Hanarl
GEM1041
Paste lubricant hanarl (GEM1041) to
salient points of both sides of the door.
NON-CONTACT SIDE
CONTACT SIDE

(1) FRONT PANEL SECTION PARTS LIST

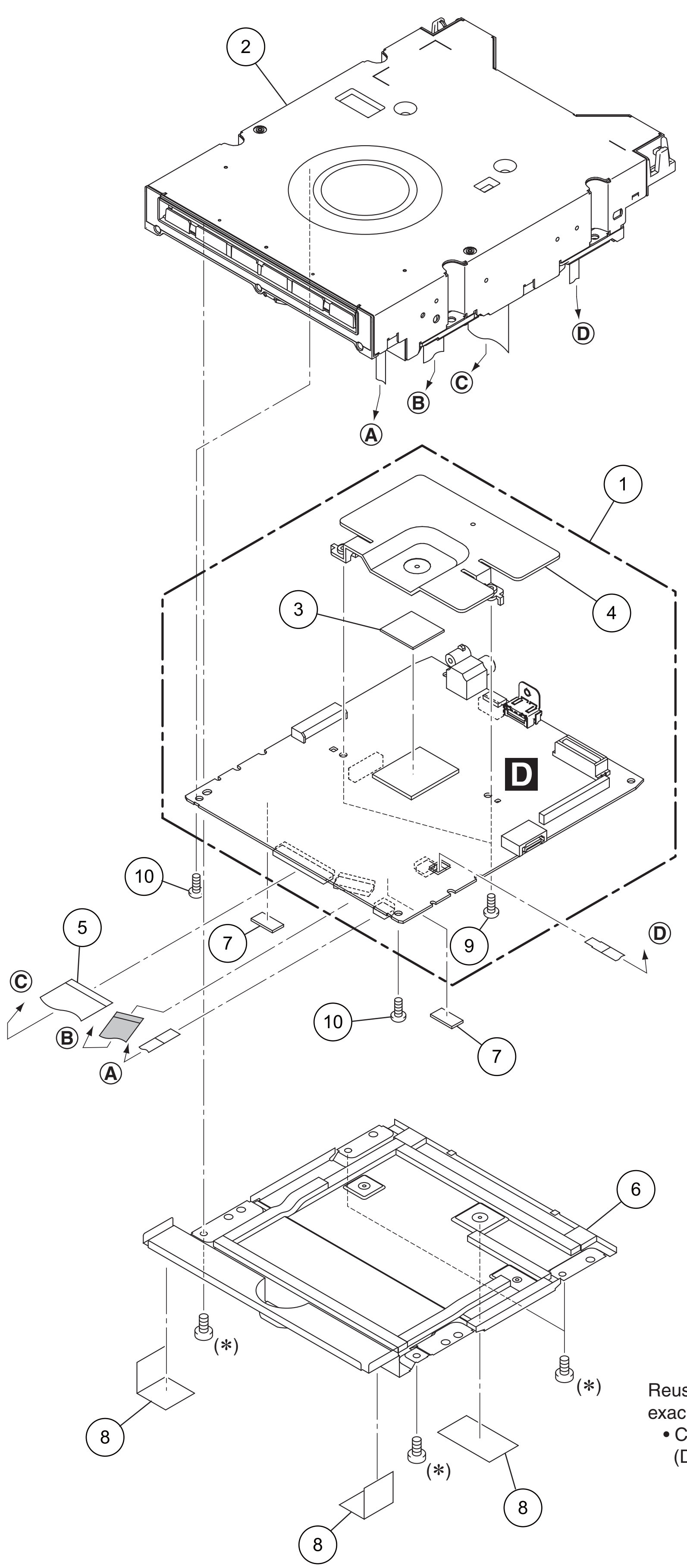
Mark	No.	Description	Part No.
	1	SERVICE FLKY Assy	YXX1007
	2	Flexible Cable (17P)	YDA1002
	3	Pioneer Name Plate	VAM1153
	4	Earth Plate FLKY	VBK1176
	5	Earth Plate	VBK1179
	6	Rubber Foot	VEB1349
	7	Rubber Sheet	VEB1396
	8	Door Cushion	VEC2561
	9	FP Bridge	VNE2464
	10	Panel Frame	VNK6149
	11	CI Cover	VNK6229
	12	Key Top PW	VNK6239
	13	Key Top REC	VNK6240
	14	Door Spring	YBK1001
	15	Main Key	YNK1004
NSP	16	Lens L	YNK1007
NSP	17	Key Lens	YNK1009
NSP	18	Key Base	YNK1010
NSP	19	Lens R	YNK1024
	20	FLKB Holder 2	YNK1043
	21	FL Lens PTD	See Contrast table (2)
	22	Door PTD	See Contrast table (2)
NSP	23	Front Panel PTD	See Contrast table (2)
	24	Sub Panel PTD	YXA1027
	25	Function Key PTD	YXA1054
NSP	26	Tray Screw	DBA1327
	27	Front Panel Assy S	See Contrast table (2)
	28	Flat Head Screw	VBA1113
	29	Screw	BPZ30P080FTC
	30	Screw	BPZ30P120FTB

(2) CONTRAST TABLE

DVR-660H-K/KCXV, DVR-560H-K/KCXV and DVR-460H-K/KCXV are constructed the same except for the following:

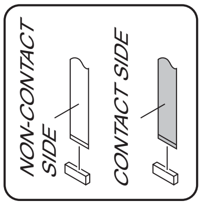
Mark	No.	Symbol and Description	DVR-660H-K /KCXV	DVR-560H-K /KCXV	DVR-460H-K /KCXV
	21	FL Lens PTD	YXA1036	YXA1011	YXA1049
	22	Door PTD	YXA1037	YXA1037	YXA1050
NSP	23	Front Panel PTD	YXA1058	YXA1058	YXA1059
	27	Front Panel Assy S	YXA1067	YXA1067	YXA1068

9.4 SERVICE LOADER MAIN SECTION


2
D
B
C
A
1
4
3
D
10
5
7
9
D
C
B
A
10
7
6
(∗)
(∗)
8
(∗)
8
8

Reuse (∗) marked parts when exachanging SERVICE LOADER Assy.

- Case Screw S (DBA1250) x2


NON-CONTACT SIDE
CONTACT SIDE

(1) SERVICE LOADER MAIN SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	SERVICE MAIN Assy	See Contrast table (2)
	2	SERVICE LOADER Assy	VXX3306
	3	Radiation Sheet (Silicon)	VEB1360
	4	Heatsink	VNH1079
	5	FFC U11	DDX1208
	6	Low Case U11	DNC1761
	7	Silicon Sheet R9B	DEB1726
NSP	8	Tape	• • • • •
	9	Screw	BBZ30P060FTC
	10	Screw	DBA1220

(2) CONTRAST TABLE

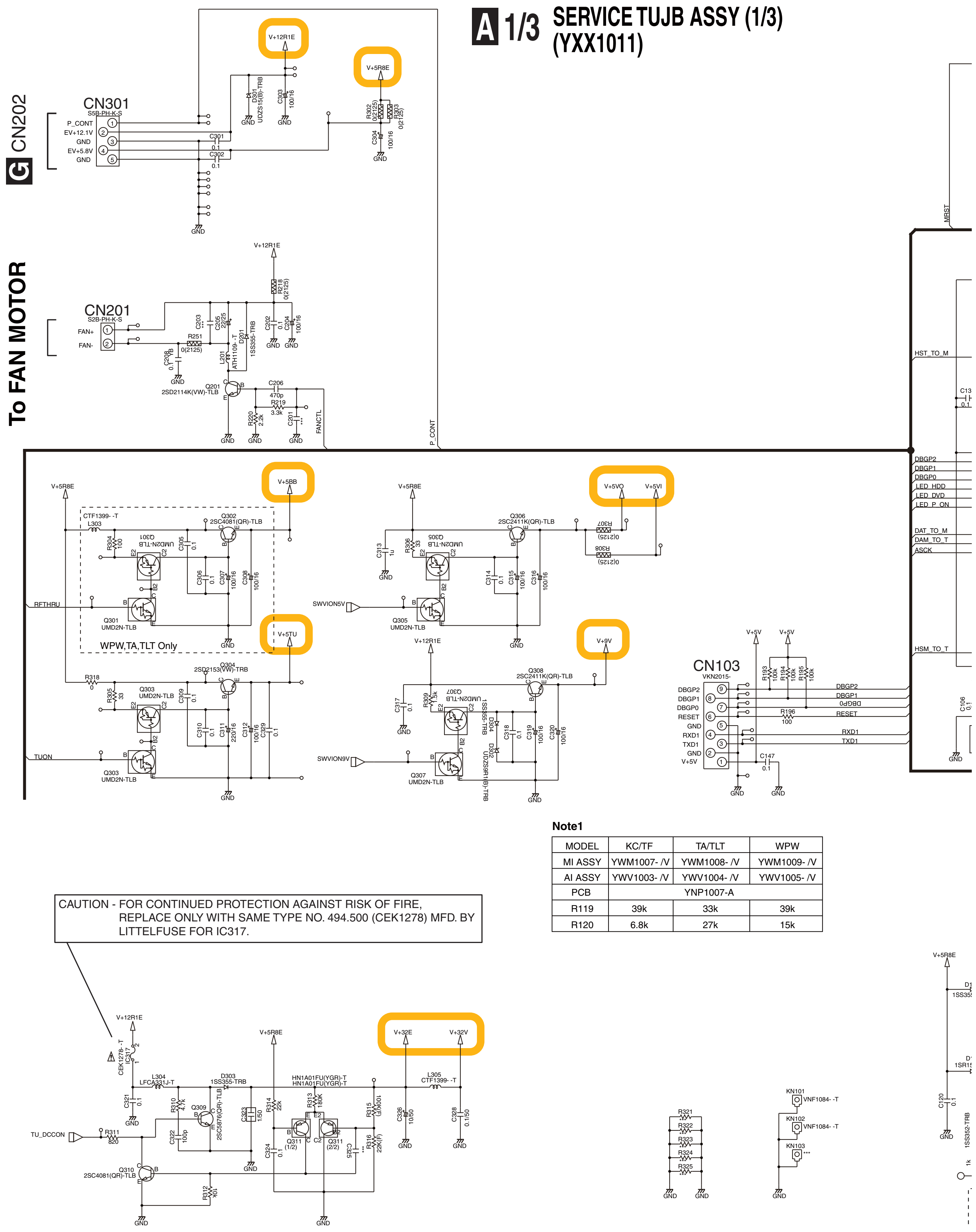
DVR-660H-K/KCXV, DVR-560H-K/KCXV and DVR-460H-K/KCXV are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-660H-K /KCXV	DVR-560H-K /KCXV	DVR-460H-K /KCXV
	1	SERVICE MAIN Assy	VXX3309	VXX3308	VXX3308

10. SCHEMATIC DIAGRAM

10.1 SERVICE TUJB ASSY (1/3)

A 1/3 SERVICE TUJB ASSY (1/3)
(YXX1011)


A
B
C
D
E
F
G CN202
CN301
S5B-PH-K-S
P_CONT
EV+12.1V
GND
EV+5.8V
GND
V+12R1E
V+5R8E
D301
UDZS15(B)-TRB
C303
100/16
C301
0.1
C302
0.1
R302
0(2125)
R303
0(2125)
C304
100/16
GND
To FAN MOTOR
CN201
S2B-PH-K-S
FAN+
FAN-
R251
0(2125)
C203
C205
22/25
D201
1SS355-TRB
L201
ATH1109-T
R218
0(2125)
C202
0.1
C204
100/16
C208
0.1
Q201
2SD2114K(VW)-TLB
C206
470p
R219
3.3k
R220
2.2k
C201
FANCTL
P_CONT
V+5R8E
V+5BB
CTF1399- -T
L303
Q302
2SC4081(QR)-TLB
R304
100
Q301
UMD2N-TLB
C305
0.1
C306
0.1
C307
100/16
C308
100/16
RFTHRU
Q301
UMD2N-TLB
WPW,TA,TLT Only
V+5TU
R318
0
Q304
2SD2153(VW)-TRB
R305
33
Q303
UMD2N-TLB
C309
0.1
C310
0.1
C311
220/16
C312
100/16
C329
0.1
TUON
Q303
UMD2N-TLB
V+5R8E
V+5VO
V+5VI
Q306
2SC2411K(QR)-TLB
R307
0(2125)
R308
0(2125)
C313
1u
R306
33
Q305
UMD2N-TLB
C314
0.1
C315
100/16
C316
100/16
SWVION5V
Q305
UMD2N-TLB
V+12R1E
V+9V
Q308
2SC2411K(QR)-TLB
C317
0.1
R309
1.5k
Q307
UMD2N-TLB
D304
1SS355-TRB
C318
0.1
C319
100/16
C320
100/16
SWVION9V
Q307
UMD2N-TLB
D302
UDZS9R1(B)-TRB
CN103
VKN2015-
DBGP2
DBGP1
DBGP0
RESET
GND
RXD1
TXD1
GND
V+5V
V+5V
V+5V
R193
100k
R194
100k
R195
100k
R196
100
C147
0.1
MRST
HST_TO_M
C13
0.1
DBGP2
DBGP1
DBGP0
LED_HDD
LED_DVD
LED_P_ON
DAT_TO_M
DAM_TO_T
ASCK
HSM_TO_T
C106
0.1
V+12R1E
CEK1278- -T
IC317
C321
0.1
L304
LFCA331J-T
D303
1SS355-TRB
R310
4.7k
Q309
2SC5876(QR)-TLB
C322
100p
TU_DCCON
R311
820
Q310
2SC4081(QR)-TLB
R312
10k
V+5R8E
C323
1/50
R314
22k
HN1A01FU(YGR)-T
HN1A01FU(YGR)-T
R313
180k
Q311
(1/2)
Q311
(2/2)
C324
0.1
C325
R315
100k(F)
R316
22k(F)
V+32E
V+32V
L305
CTF1399- -T
C326
10/50
C328
0.1/50
R321
R322
R323
R324
R325
KN101
VNF1084- -T
KN102
VNF1084- -T
KN103
V+5R8E
1SS35
1SR15
C120
0.1
1SS352-TRB
1k

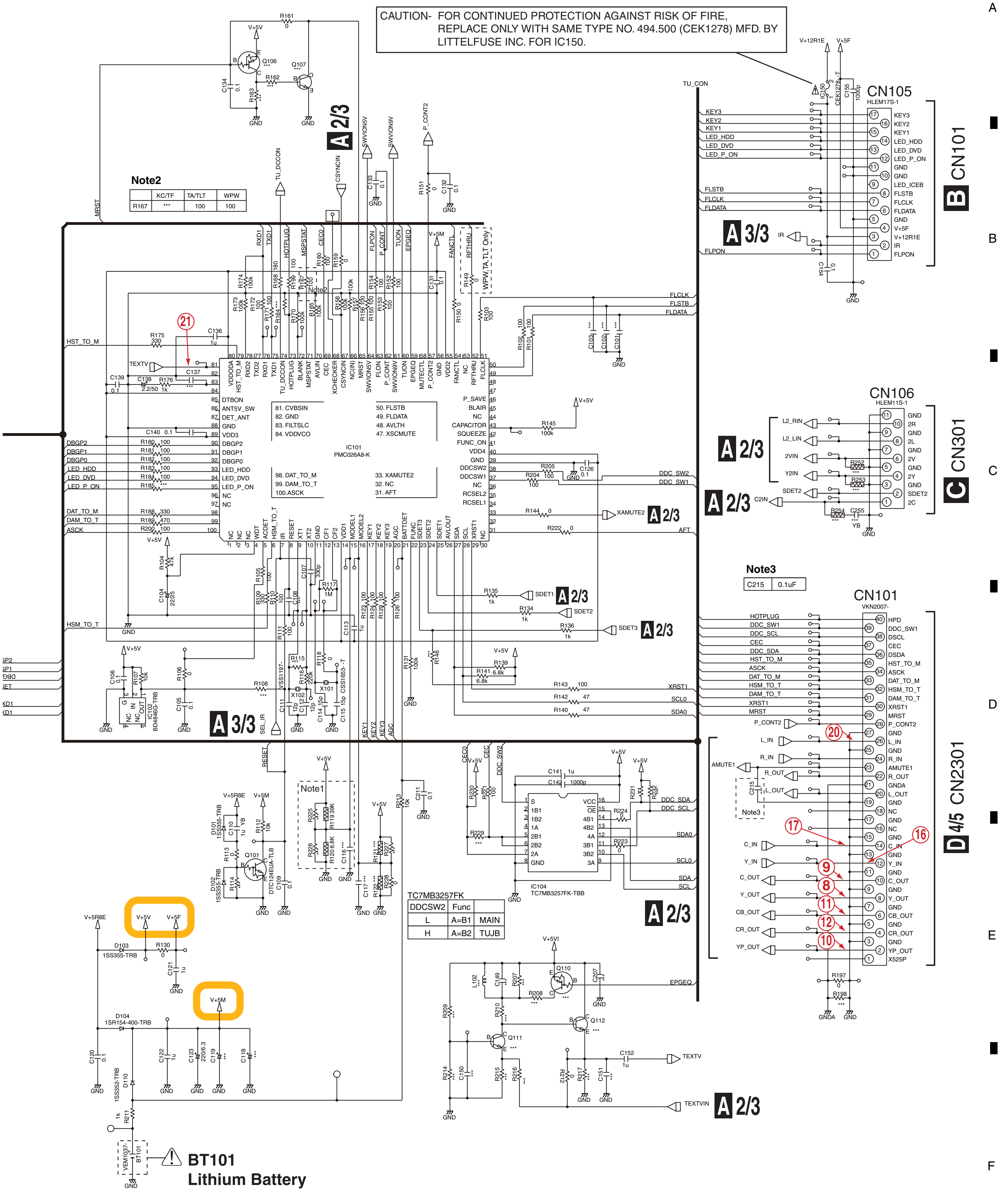
Note1

MODEL	KC/TF	TA/TLT	WPW
MI ASSY	YWM1007- /V	YWM1008- /V	YWM1009- /V
AI ASSY	YWV1003- /V	YWV1004- /V	YWV1005- /V
PCB	YNP1007-A		
R119	39k	33k	39k
R120	6.8k	27k	15k

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,
REPLACE ONLY WITH SAME TYPE NO. 494.500 (CEK1278) MFD. BY
LITTELFUSE FOR IC317.

A 1/3

CAUTION- FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. 494.500 (CEK1278) MFD. BY LITTELFUSE INC. FOR IC150.


A 2/3
A 3/3
B CN101
C CN301
D 4/5 CN2301
CN105
HLEM17S-1
CN106
HLEM11S-1
CN101
VKN2007-
IC101
PMC026A8-K
IC104
TC7MB3257FK-TBB
IC150
CEK1278-T
Q101 DTC124EUA-TLB
Q106
Q107
Q110
Q111
Q112
X101 CSS1653-T
TU_CON
V+5V
V+5F
V+5M
V+5R8E
V+5VI
V+12R1E
Note1
BT101
Lithium Battery
VEM1037-
D101 1SS355-TRB
D102 1SS355-TRB
D103 1SS355-TRB
D104 1SR154-400-TRB
D110 1SS352-TRB
TEXTV
TEXTVIN
EPGEQ
XAMUTE2
SDET1
SDET2
SDET3
AFT
HST_TO_M
HSM_TO_T
DAT_TO_M
DAM_TO_T
ASCK
FLCLK
FLSTB
FLDATA
FLPON
DDC_SW1
DDC_SW2
DDC_SDA
DDC_SCL
XRST1
SCL0
SDA0
KEY1
KEY2
KEY3
LED_HDD
LED_DVD
LED_P_ON
IR
(21)
(20)
(17)
(16)
(9)
(8)
(11)
(12)
(10)

Note2

	KC/TF	TA/TLT	WPW
R167	***	100	100

Note3

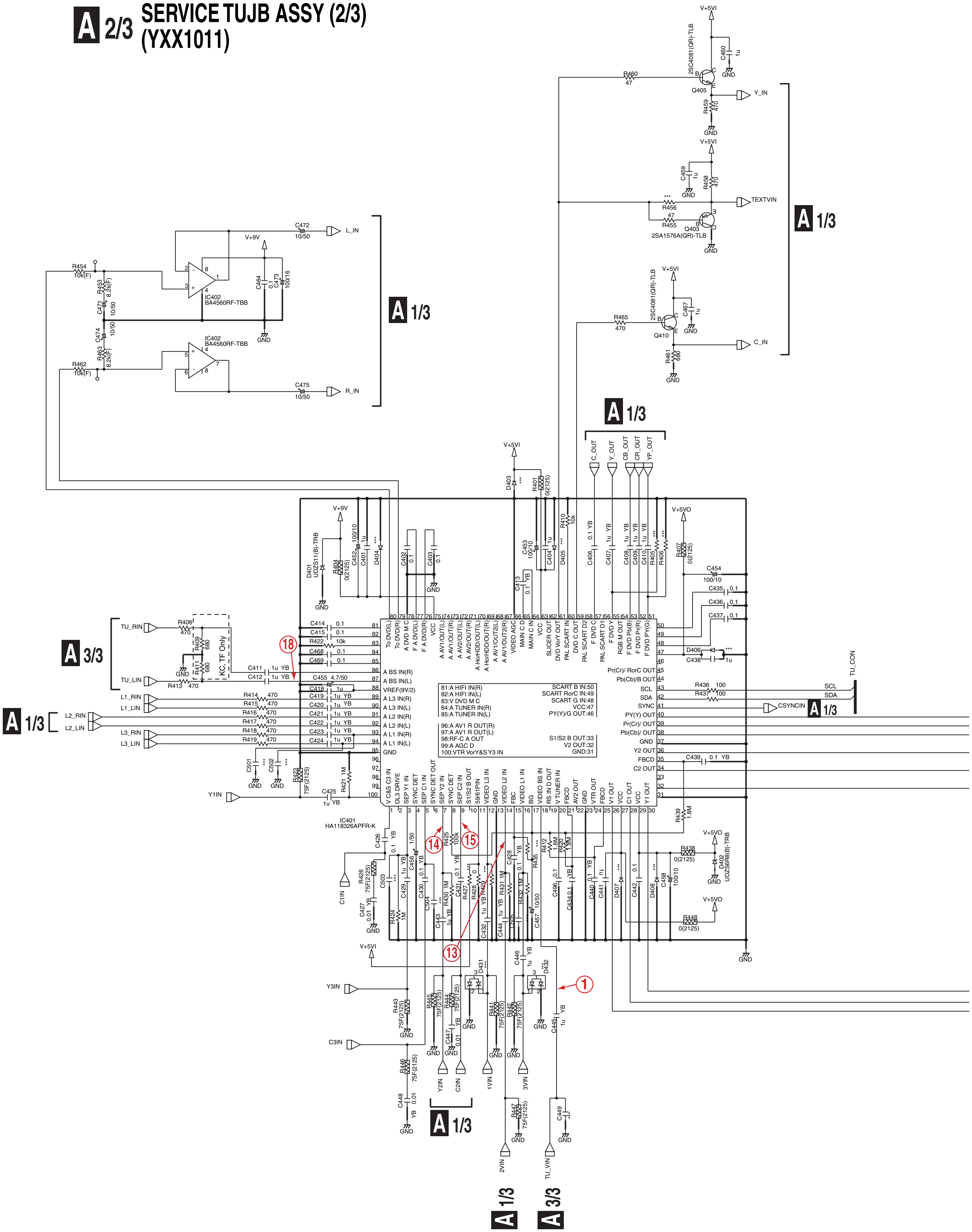
C215	0.1uF

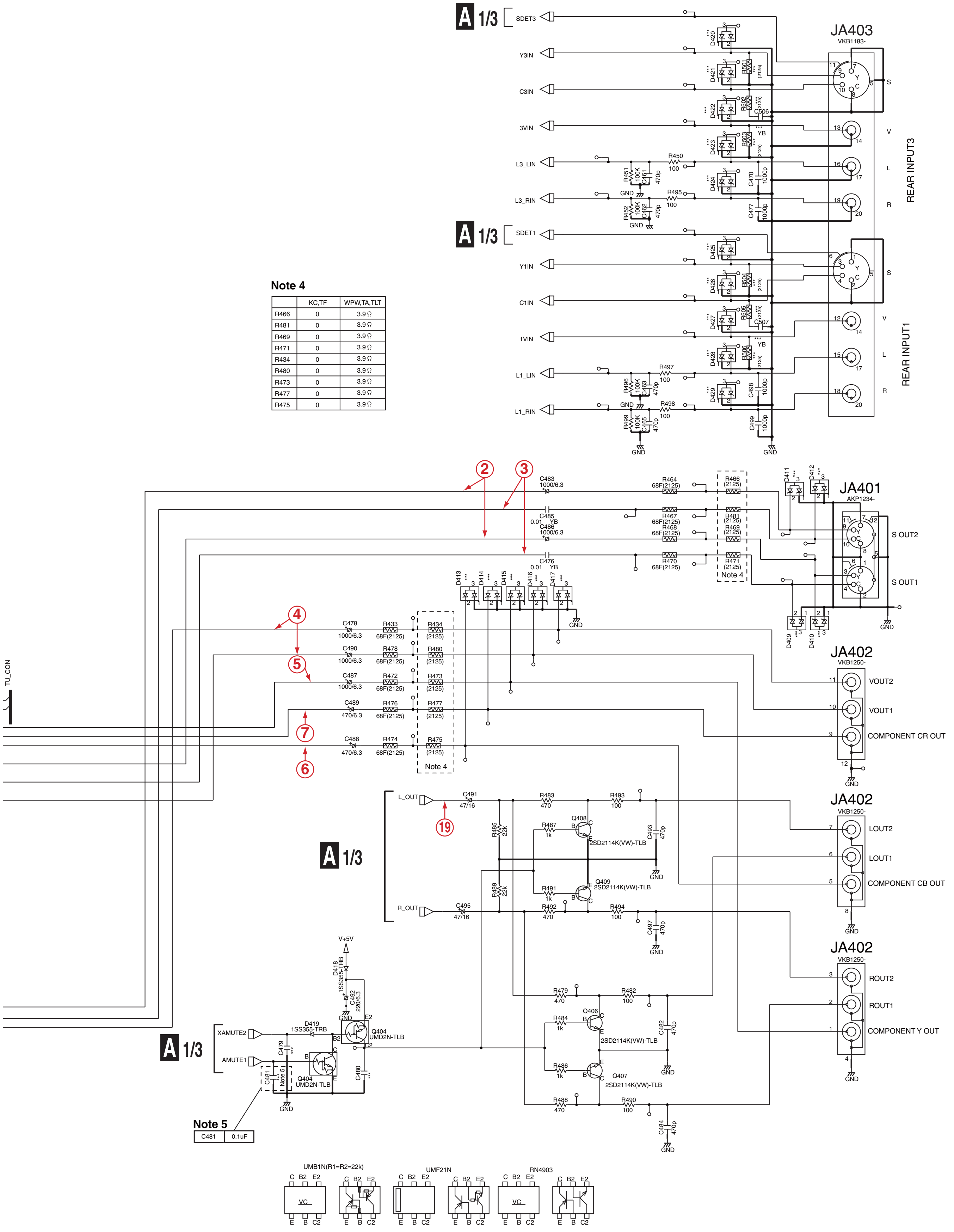
TC7MB3257FK

DDCSW2	Func	
L	A=B1	MAIN
H	A=B2	TUJB

10.2 SERVICE TUJB ASSY (2/3)

A 2/3 SERVICE TUJB ASSY (2/3) (YXX1011)


A 1/3
A 3/3
A 1/3
IC401
HA118326APFR-K
IC402
BA4560RF-TBB
Q405 2SC4081(QR)-TLB
Q403 2SA1576A(QR)-TLB
Q410 2SC4081(QR)-TLB
D401 UDZS11(B)-TRB
D402 UDZS6R8(B)-TRB
Y_IN
TEXTVIN
C_IN
L_IN
R_IN
C_OUT
Y_OUT
CB_OUT
CR_OUT
YP_OUT
TU_RIN
TU_LIN
L1_RIN
L1_LIN
L2_RIN
L2_LIN
L3_RIN
L3_LIN
Y1IN
C1IN
Y3IN
C3IN
Y2IN
C2IN
1VIN
3VIN
2VIN
TU_VIN
TU_CON
SCL
SDA
CSYNCIN
KC, TF Only
V+5VI
V+9V
V+5VO
GND
81:A HIFI IN(R)
82:A HIFI IN(L)
83:V DVD M C
84:A TUNER IN(R)
85:A TUNER IN(L)
96:A AV1 R OUT(R)
97:A AV1 R OUT(L)
98:RF-C A OUT
99:A AGC D
100:VTR VorY&S Y3 IN
SCART B IN:50
SCART RorC IN:49
SCART G IN:48
VCC:47
PY(Y)/G OUT:46
S1/S2 B OUT:33
V2 OUT:32
GND:31
(18)
(14)
(15)
(13)
(1)


A 1/3
SDET3
Y3IN
C3IN
3VIN
L3_LIN
L3_RIN
A 1/3
SDET1
Y1IN
C1IN
1VIN
L1_LIN
L1_RIN
GND
R450 100
R451 100K
C461 470p
R495 100
R452 100K
C462 470p
R497 100
R496 100K
C463 470p
R498 100
R499 100K
C465 470p
D420
D421
D422
D423
D424
D425
D426
D427
D428
D429
R501 (2125)
R502 (2125)
C506
R503 (2125)
YB
C470 1000p
C477 1000p
R504 (2125)
R505 (2125)
C507
R506 (2125)
YB
C498 1000p
C499 1000p
JA403
VKB1183-
S
V
L
R
REAR INPUT3
REAR INPUT1
JA401
AKP1234-
S OUT2
S OUT1
D411
D412
D409
D410
C483 1000/6.3
R464 68F(2125)
R466 (2125)
C485 0.01 YB
R467 68F(2125)
R481 (2125)
C486 1000/6.3
R468 68F(2125)
R469 (2125)
C476 0.01 YB
R470 68F(2125)
R471 (2125)
Note 4
D413
D414
D415
D416
D417
2
3
4
5
6
7
19
TU_CON
C478 1000/6.3
R433 68F(2125)
R434 (2125)
C490 1000/6.3
R478 68F(2125)
R480 (2125)
C487 1000/6.3
R472 68F(2125)
R473 (2125)
C489 470/6.3
R476 68F(2125)
R477 (2125)
C488 470/6.3
R474 68F(2125)
R475 (2125)
Note 4
JA402
VKB1250-
VOUT2
VOUT1
COMPONENT CR OUT
LOUT2
LOUT1
COMPONENT CB OUT
ROUT2
ROUT1
COMPONENT Y OUT
A 1/3
L_OUT
C491 47/16
R483 470
R493 100
R485 22k
R487 1k
Q408
2SD2114K(VW)-TLB
C493 470p
Q409
2SD2114K(VW)-TLB
R489 22k
R491 1k
R_OUT
C495 47/16
R492 470
R494 100
C497 470p
R479 470
R482 100
Q406
R484 1k
C482 470p
2SD2114K(VW)-TLB
R486 1k
Q407
2SD2114K(VW)-TLB
R488 470
R490 100
C484 470p
V+5V
D418 1SS355-TRB
C492 220/6.3
D419 1SS355-TRB
Q404 UMD2N-TLB
A 1/3
XAMUTE2
AMUTE1
C479
C481
Note 5
C480
Q404 UMD2N-TLB
UMB1N(R1=R2=22k)
UMF21N
RN4903
C B2 E2
E B C2
VC

Note 4

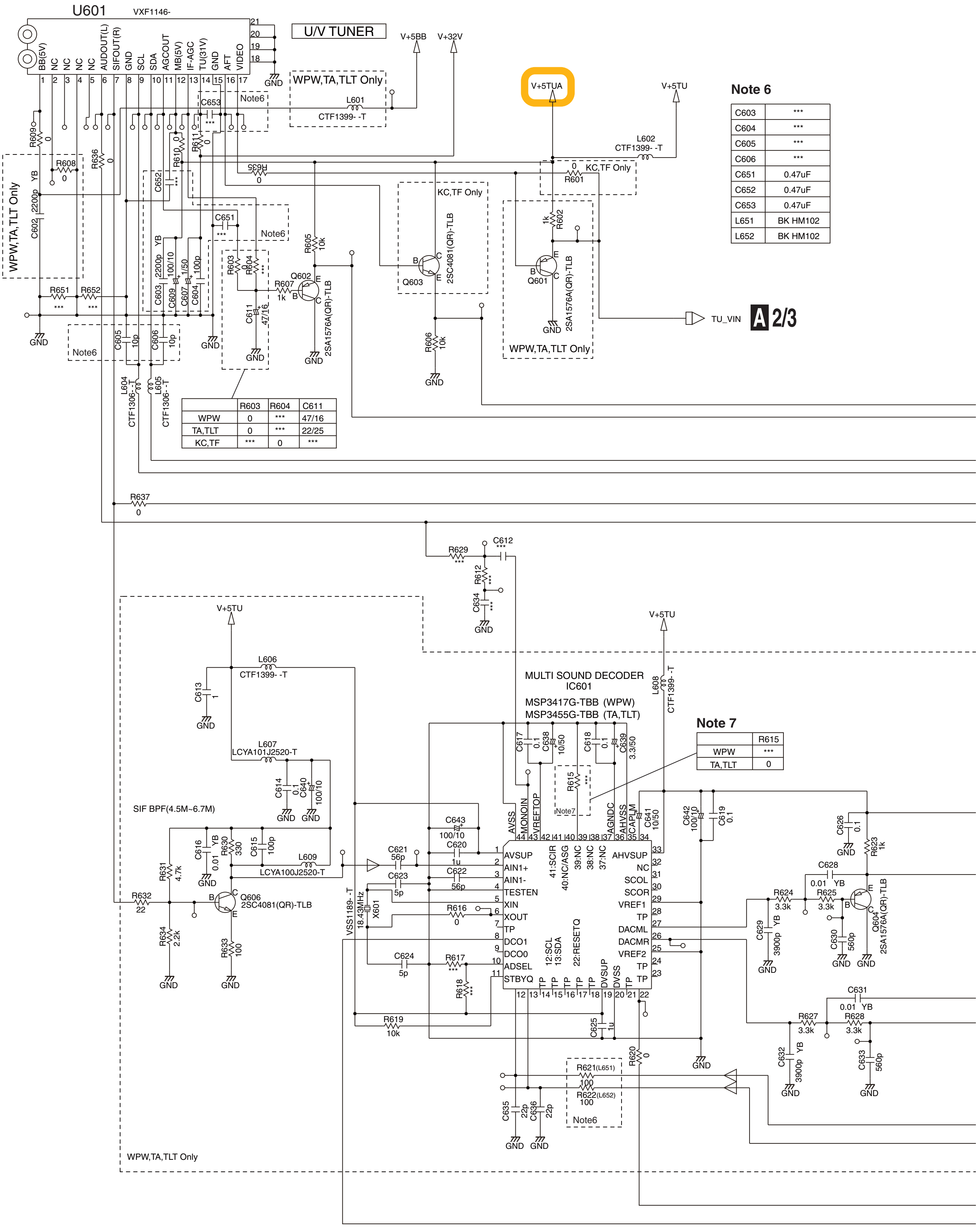
	KC,TF	WPW,TA,TLT
R466	0	3.9Ω
R481	0	3.9Ω
R469	0	3.9Ω
R471	0	3.9Ω
R434	0	3.9Ω
R480	0	3.9Ω
R473	0	3.9Ω
R477	0	3.9Ω
R475	0	3.9Ω

Note 5

C481	0.1uF

]

10.3 SERVICE TUJB ASSY (3/3)


A
B
C
D
E
F
U601
VXF1146-
U/V TUNER
BB(5V)
NC
NC
NC
NC
AUDOUT(L)
SIFOUT(R)
GND
SCL
SDA
AGCOUT
MB(5V)
IF-AGC
TU(31V)
GND
AFT
VIDEO
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
18 19 20 21
GND
V+5BB
V+32V
WPW,TA,TLT Only
L601
CTF1399- -T
C653
***
Note6
V+5TUA
V+5TU
L602
CTF1399- -T
KC,TF Only
R601
0
R609
0
R608
0
R636
0
R610
0
R611
0
R635
0
YB
C602
2200p
WPW,TA,TLT Only
C652
***
C651
***
Note6
YB
2200p
100/10
1/50
100p
C603
C609
C607
C604
R603
R604
***
R605
10k
Q602
R607
1k
2SA1576A(QR)-TLB
C611
47/16
KC,TF Only
Q603
2SC4081(QR)-TLB
R606
10k
R602
1k
Q601
2SA1576A(QR)-TLB
WPW,TA,TLT Only
TU_VIN
A 2/3
R651
***
R652
***
GND
C605
10p
C606
10p
Note6
L604
CTF1306-T
L605
CTF1306-T
R637
0
R629
***
C612
***
R612
***
C634
***
GND
V+5TU
L606
CTF1399- -T
C613
1
L607
LCYA101J2520-T
C614
0.1
C640
100/10
SIF BPF(4.5M~6.7M)
C616
0.01
YB
R630
330
C615
100p
L609
LCYA100J2520-T
R631
4.7k
R632
22
Q606
2SC4081(QR)-TLB
R634
2.2k
R633
100
VSS1189- -T
18.43MHz
X601
C621
56p
C623
5p
C643
100/10
C620
1u
C622
56p
R616
0
C624
5p
R617
***
R618
***
R619
10k
MULTI SOUND DECODER
IC601
MSP3417G-TBB (WPW)
MSP3455G-TBB (TA,TLT)
V+5TU
L608
CTF1399- -T
C617
0.1
C638
10/50
C618
0.1
C639
3.3/50
R615
***
Note7
C641
10/50
C642
100/10
C619
0.1
AVSS
MONOIN
VREFTOP
AGNDC
AHVSS
CAPLM
44 43 42 41 40 39 38 37 36 35 34
41:SCIR
40:NC/ASG
39:NC
38:NC
37:NC
AVSUP
AIN1+
AIN1-
TESTEN
XIN
XOUT
TP
DCO1
DCO0
ADSEL
STBYQ
1 2 3 4 5 6 7 8 9 10 11
AHVSUP
NC
SCOL
SCOR
VREF1
TP
DACML
DACMR
VREF2
TP
TP
33 32 31 30 29 28 27 26 25 24 23
12:SCL
13:SDA
22:RESETQ
TP TP TP TP TP DVSUP DVSS TP
12 13 14 15 16 17 18 19 20 21 22
C625
1u
R620
0
R621(L651)
100
R622(L652)
100
Note6
C635
22p
C636
22p
GND
C626
0.1
R623
1k
C628
0.01 YB
R624
3.3k
R625
3.3k
Q604
2SA1576A(QR)-TLB
C629
3900p
YB
C630
560p
C631
0.01 YB
R627
3.3k
R628
3.3k
C632
3900p
YB
C633
560p
WPW,TA,TLT Only

Note 6

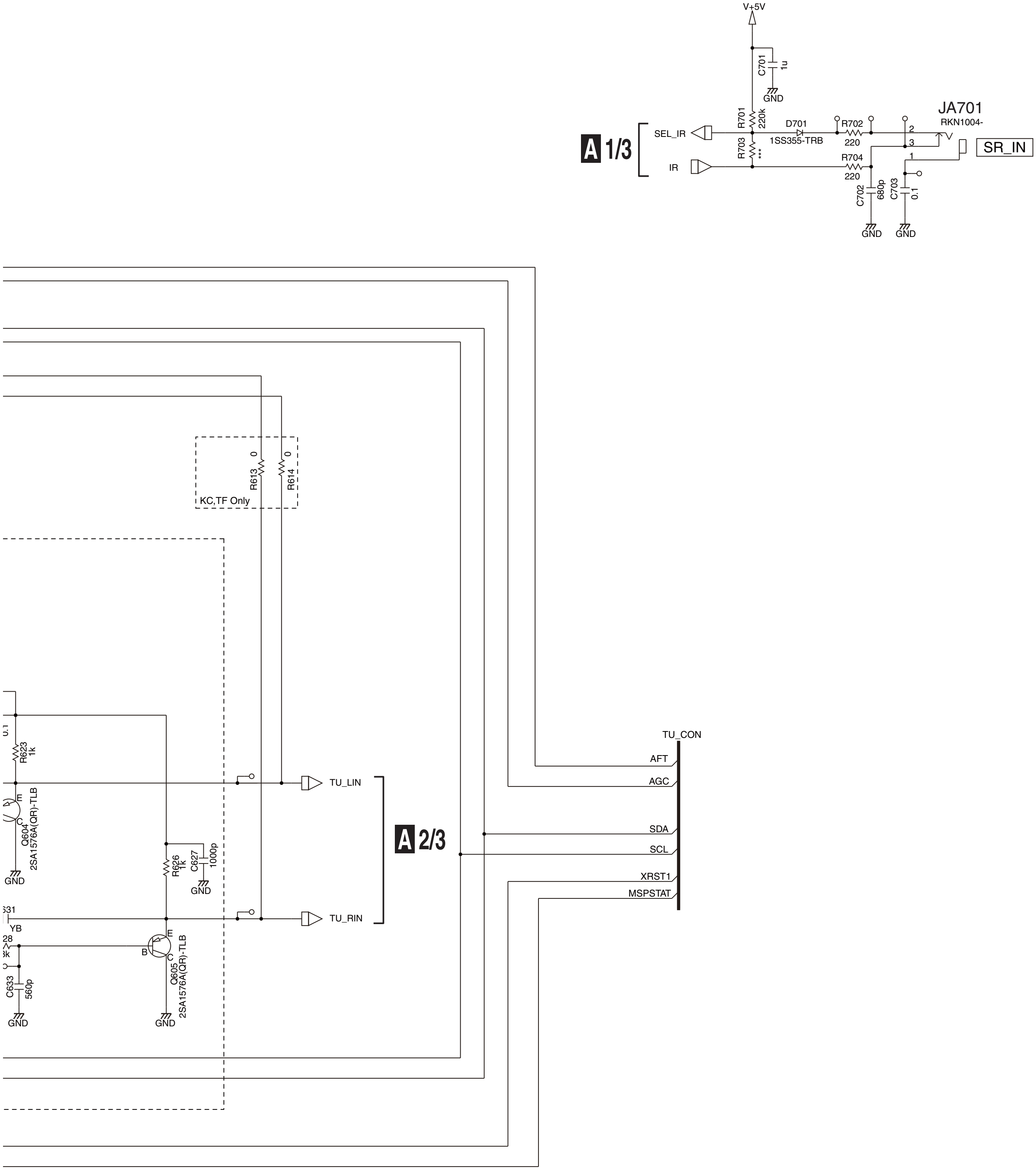
C603	***
C604	***
C605	***
C606	***
C651	0.47uF
C652	0.47uF
C653	0.47uF
L651	BK HM102
L652	BK HM102

	R603	R604	C611
WPW	0	***	47/16
TA,TLT	0	***	22/25
KC,TF	***	0	***

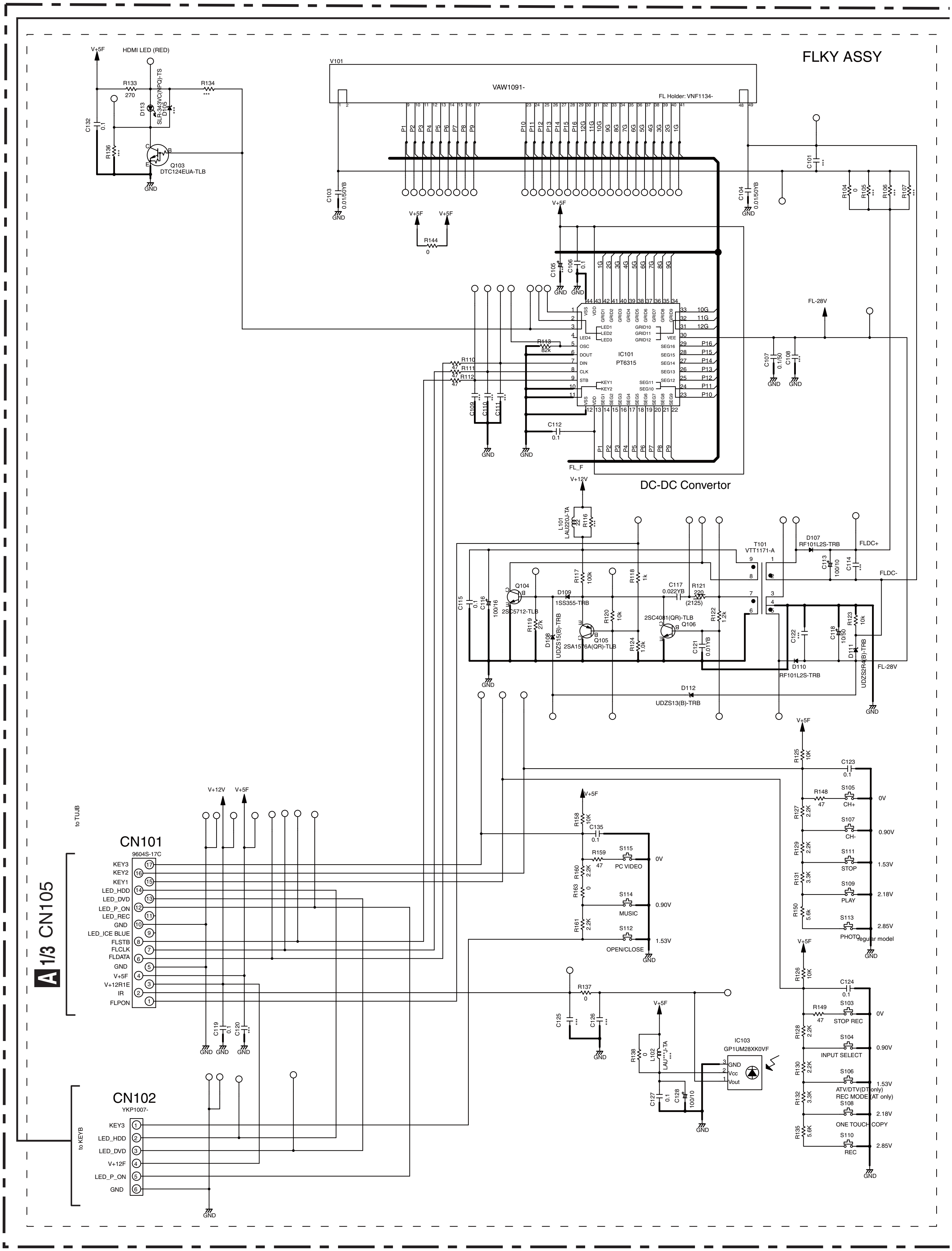
Note 7

	R615
WPW	***
TA,TLT	0

A 3/3 SERVICE TUJB ASSY (3/3) (YXX1011)


V+5V
C701
1u
GND
R701
220k
D701
1SS355-TRB
R702
220
JA701
RKN1004-
2
3
1
SR_IN
A 1/3
SEL_IR
IR
R703
***
R704
220
C702
680p
C703
0.1
GND
GND
R613
0
R614
0
KC,TF Only
0.1
R623
1k
Q604
2SA1576A(QR)-TLB
E
C
GND
R626
1k
C627
1000p
GND
TU_LIN
TU_RIN
A 2/3
631
YB
28
3k
C633
560p
GND
B
E
C
Q605
2SA1576A(QR)-TLB
GND
TU_CON
AFT
AGC
SDA
SCL
XRST1
MSPSTAT

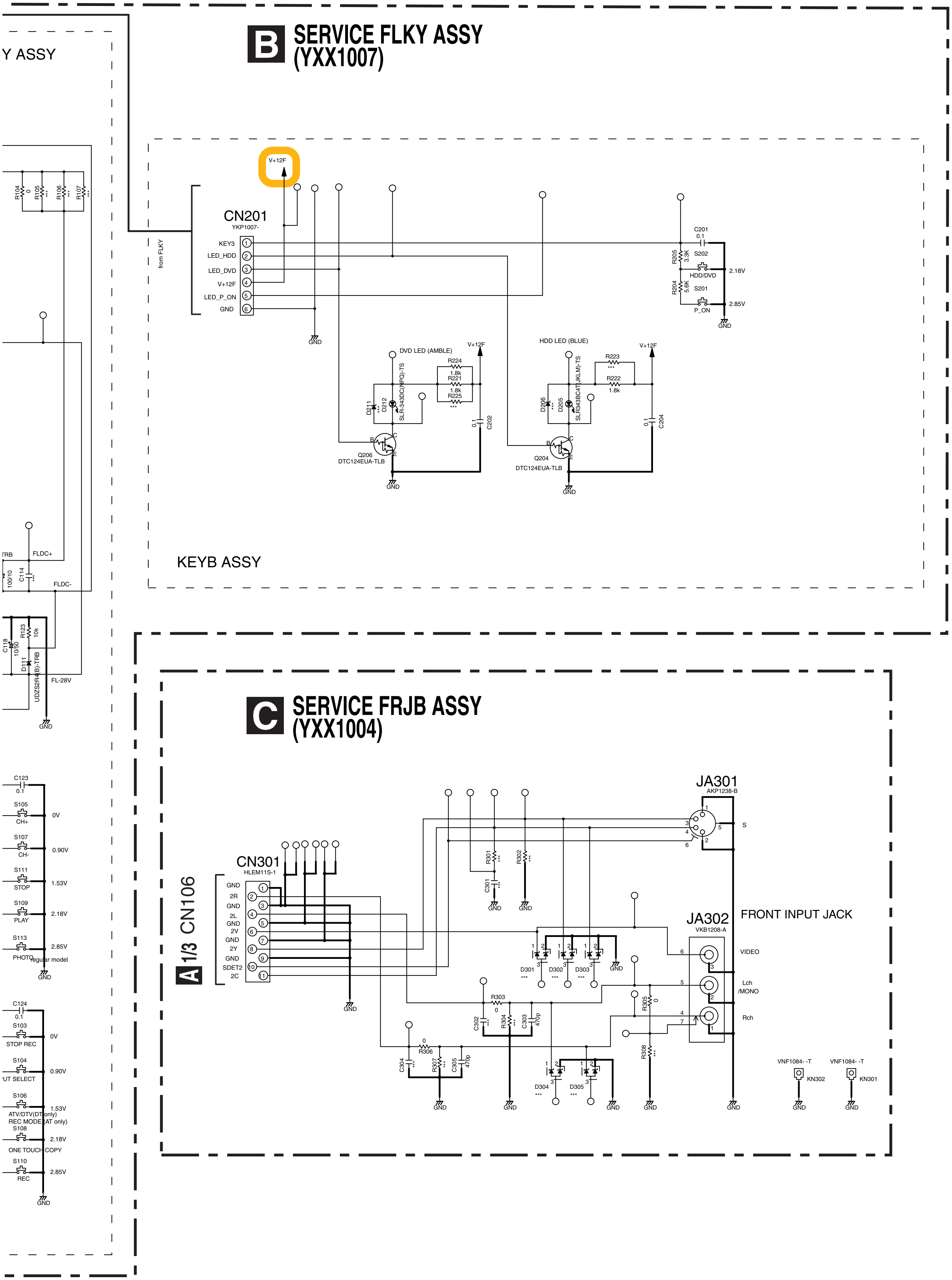
10.4 SERVICE FLKY ASSY


FLKY ASSY
V+5F
HDMI LED (RED)
R133 270
R134
D113 SLR-343VC(NPQ)-TS
D105
C132 0.1
R136
Q103 DTC124EUA-TLB
GND
V101
VAW1091-
FL Holder: VNF1134-
P1 P2 P3 P4 P5 P6 P7 P8 P9
P10 P11 P12 P13 P14 P15 P16
12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G
C103 0.01/50YB
C104 0.01/50YB
C101
R104 0
R105
R106
R107
R144 0
C105
C106 0.1
IC101 PT6315
R113 82K
R110 47
R111 47
R112 47
C109
C110
C111
C112 0.1
FL-28V
C107 0.1/50
C108
FL_F
V+12V
DC-DC Convertor
L101 LAU220J-TA
R116
T101 VTT1171-A
D107 RF101L2S-TRB
FLDC+
FLDC-
C113 100/10
C114
Q104 2SC5712-TLB
D109 1SS355-TRB
R117 100k
R118 1k
C117 0.022YB
R121 220 (2125)
C115 0.1
C116 100/16
R119 27K
D108 UDZS15(B)-TRB
Q105 2SA1576A(QR)-TLB
R120 10k
R124 10k
Q106 2SC4081(QR)-TLB
R122 1.2k
C121 0.01YB
C122
C118 10/50
R123 10k
D111 UDZS24(B)-TRB
D110 RF101L2S-TRB
D112 UDZS13(B)-TRB
R125 10K
C123 0.1
R148 47
S105 CH+ 0V
R127 2.2K
S107 CH- 0.90V
R129 2.2K
S111 STOP 1.53V
R131 3.3K
S109 PLAY 2.18V
R150 5.6K
S113 PHOTO 2.85V
regular model
R158 10K
C135 0.1
R159 47
S115 PC VIDEO 0V
R160 2.2K
R163 0
S114 MUSIC 0.90V
R161 2.2K
S112 OPEN/CLOSE 1.53V
to TUJB
CN101
9604S-17C
KEY3 KEY2 KEY1 LED_HDD LED_DVD LED_P_ON LED_REC GND LED_ICE BLUE FLSTB FLCLK FLDATA GND V+5F V+12R1E IR FLPON
A 1/3 CN105
C119 0.1
C120
R137 0
C125
C126
R138 0
L102 LAU***J-TA
C127 0.1
C128 10/10
IC103 GP1UM28XK0VF
GND Vcc Vout
R126 10K
C124 0.1
R149 47
S103 STOP REC 0V
R128 2.2K
S104 INPUT SELECT 0.90V
R130 2.2K
S106 ATV/DTV(DT only) REC MODE (AT only) 1.53V
R132 3.3K
S108 ONE TOUCH COPY 2.18V
R135 5.6K
S110 REC 2.85V
to KEYB
CN102
YKP1007-
KEY3 LED_HDD LED_DVD V+12F LED_P_ON GND

B C

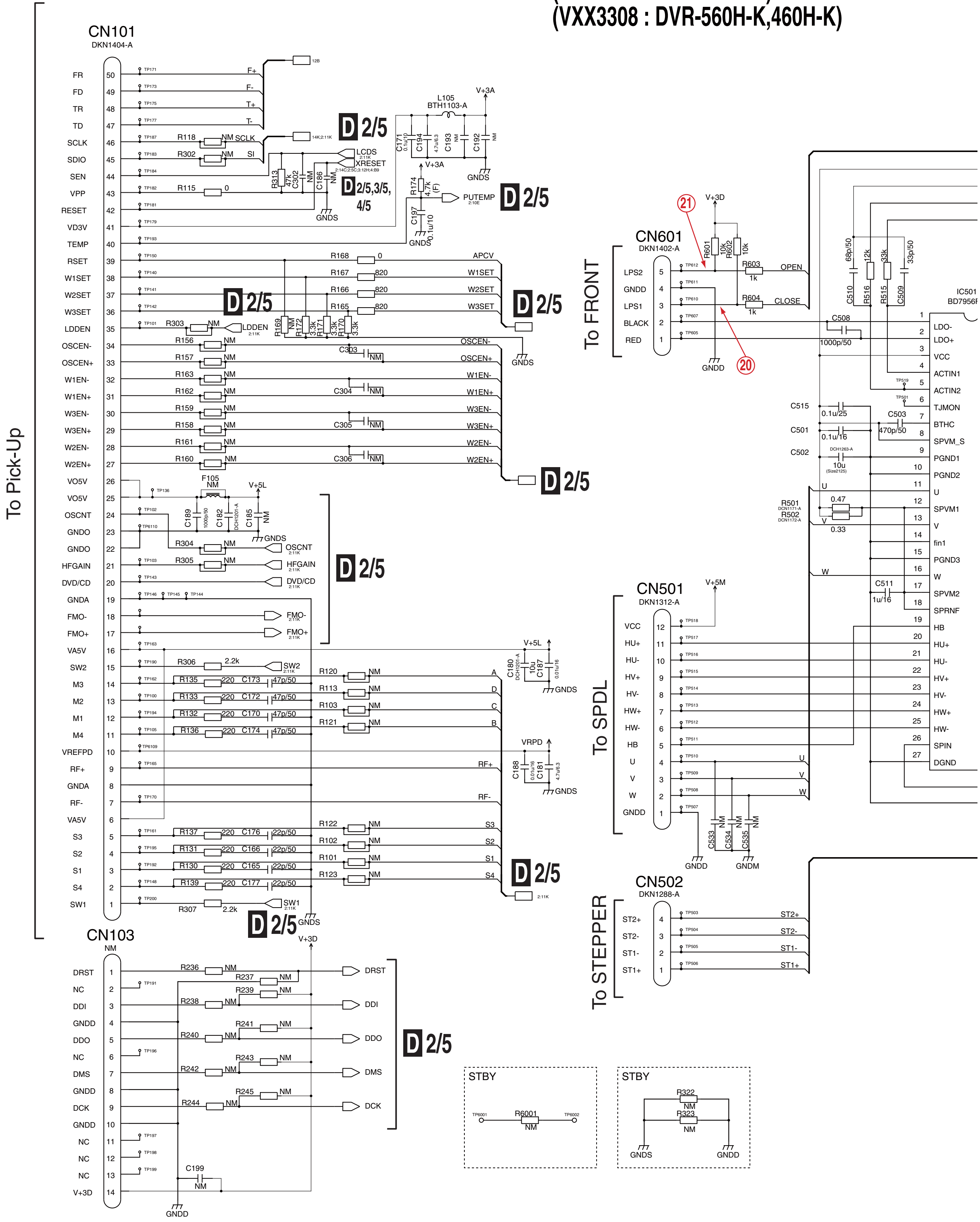
B SERVICE FLKY ASSY (YXX1007)

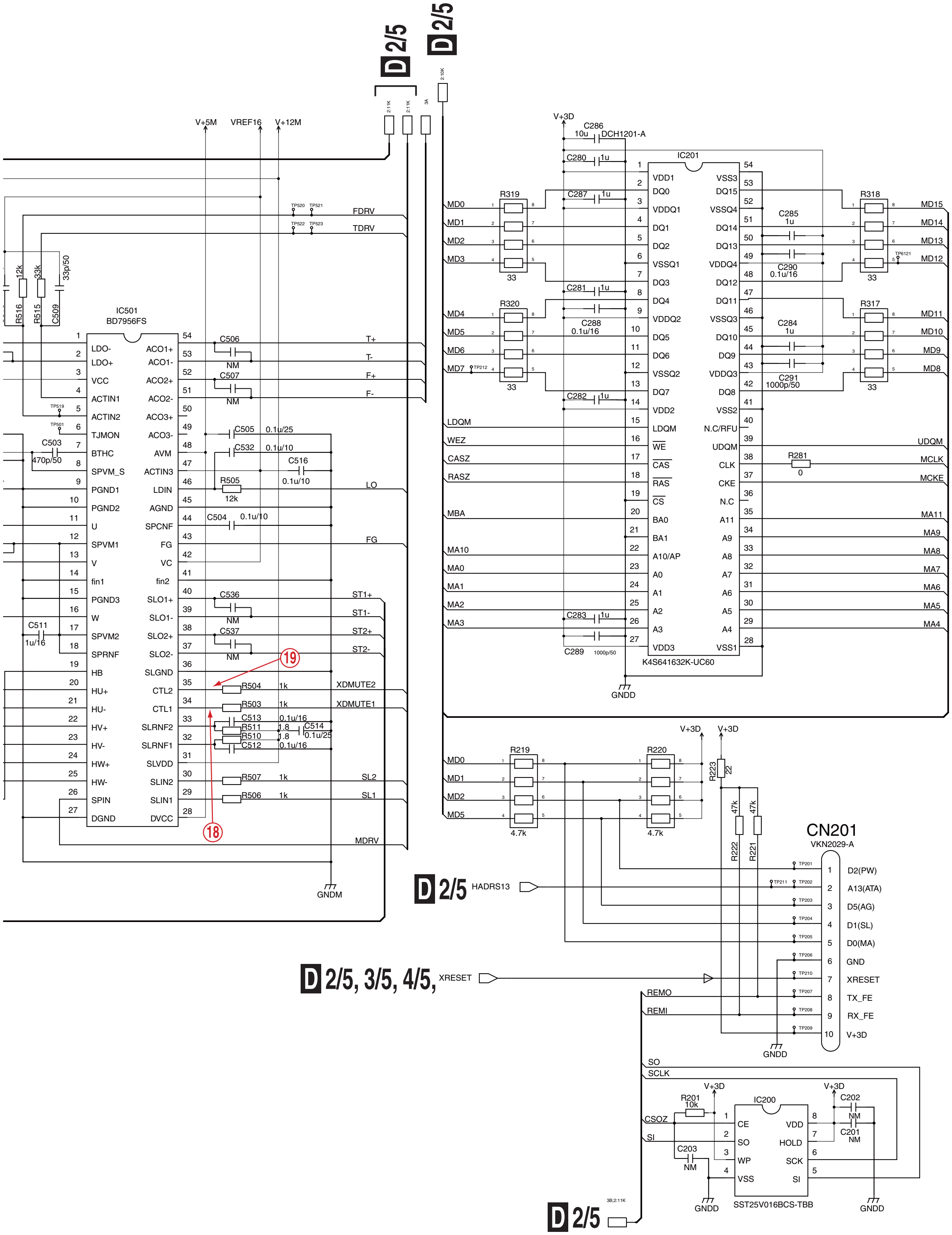
C SERVICE FRJB ASSY (YXX1004)


Y ASSY
R104 0
R105
R106
R107
TRB
FLDC+
100/10
C114
FLDC-
C118 10/50
R123 10k
D111
UDZS2R4(B)-TRB
FL-28V
GND
C123 0.1
S105 CH+ 0V
S107 CH- 0.90V
S111 STOP 1.53V
S109 PLAY 2.18V
S113 PHOTO 2.85V
regular model
C124 0.1
S103 STOP REC 0V
S104 UT SELECT 0.90V
S106 ATV/DTV(DT only) REC MODE(AT only) 1.53V
S108 ONE TOUCH COPY 2.18V
S110 REC 2.85V
V+12F
from FLKY
CN201
YKP1007-
KEY3 1
LED_HDD 2
LED_DVD 3
V+12F 4
LED_P_ON 5
GND 6
C201 0.1
R205 3.3K
S202 HDD/DVD
2.18V
R204 5.6K
S201 P_ON
2.85V
DVD LED (AMBLE)
R224 1.8k
R221 1.8k
R225
D211
D212
SLR-343DC(NPQ)-TS
C202 0.1
Q206 DTC124EUA-TLB
HDD LED (BLUE)
R223
R222 1.8k
D206
D205
SLR343BC4T(JKLM)-TS
C204 0.1
Q204 DTC124EUA-TLB
KEYB ASSY
A 1/3 CN106
CN301
HLEM11S-1
GND 1
2R 2
GND 3
2L 4
GND 5
2V 6
GND 7
2Y 8
GND 9
SDET2 10
2C 11
JA301
AKP1238-B
S
R301
R302
C301
JA302
VKB1208-A
FRONT INPUT JACK
VIDEO
Lch /MONO
Rch
D301
D302
D303
R303 0
R305 0
C302
R304
C303 470p
R306 0
C304
R307
C305 470p
D304
D305
R308
VNF1084- -T KN302
VNF1084- -T KN301
GND

10.5 SERVICE MAIN ASSY (1/5)

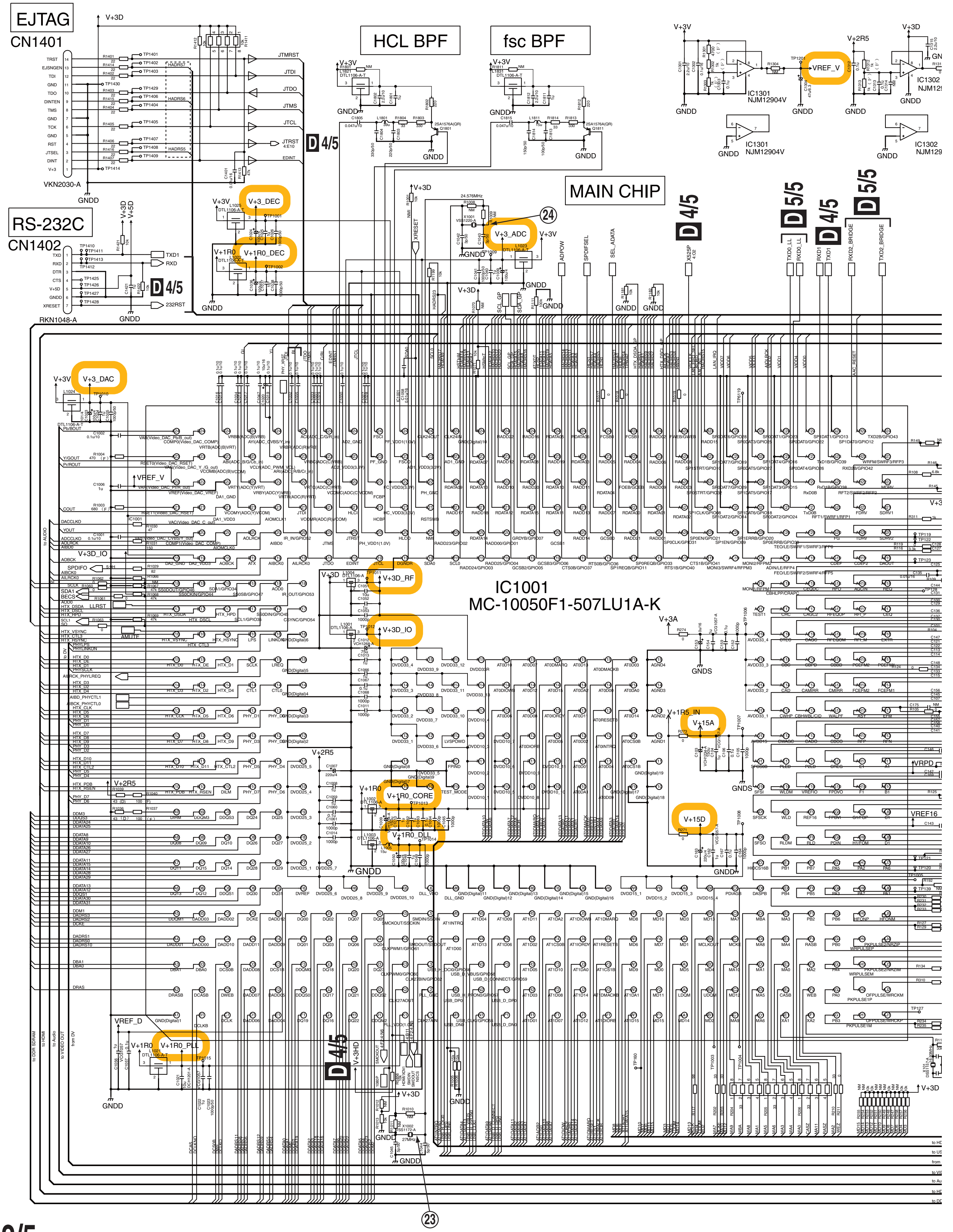
D 1/5 SERVICE MAIN ASSY (1/5)
(VXX3309 : DVR-660H-K)
(VXX3308 : DVR-560H-K,460H-K)


To Pick-Up
CN101
DKN1404-A
FR 50
FD 49
TR 48
TD 47
SCLK 46
SDIO 45
SEN 44
VPP 43
RESET 42
VD3V 41
TEMP 40
RSET 39
W1SET 38
W2SET 37
W3SET 36
LDDEN 35
OSCEN- 34
OSCEN+ 33
W1EN- 32
W1EN+ 31
W3EN- 30
W3EN+ 29
W2EN- 28
W2EN+ 27
VO5V 26
VO5V 25
OSCNT 24
GNDO 23
GNDO 22
HFGAIN 21
DVD/CD 20
GNDA 19
FMO- 18
FMO+ 17
VA5V 16
SW2 15
M3 14
M2 13
M1 12
M4 11
VREFPD 10
RF+ 9
GNDA 8
RF- 7
VA5V 6
S3 5
S2 4
S1 3
S4 2
SW1 1
F+
F-
T+
T-
R118 NM SCLK
R302 NM SI
R115 0
LCDS
XRESET
R313 47k
C302
C186 NM
GNDS
L105
BTH1103-A
V+3A
C171 0.1u/10
C194 4.7u/6.3
C193 NM
C192 NM
R174 4.7k (F)
C197 0.1u/10
PUTEMP
R168 0 APCV
R167 820 W1SET
R166 820 W2SET
R165 820 W3SET
R303 NM LDDEN
R169 NM
R172 3.3k
R171 3.3k
R170 3.3k
R156 NM OSCEN-
R157 NM OSCEN+
C303 NM
R163 NM W1EN-
R162 NM C304 NM W1EN+
R159 NM W3EN-
R158 NM C305 NM W3EN+
R161 NM W2EN-
R160 NM C306 NM W2EN+
F105 NM
V+5L
C189 1000p/50
C182 DCH1201-A
C185 NM
R304 NM OSCNT
R305 NM HFGAIN
DVD/CD
FMO-
FMO+
R306 2.2k SW2
R135 220 C173 47p/50
R133 220 C172 47p/50
R132 220 C170 47p/50
R136 220 C174 47p/50
R120 NM A
R113 NM D
R103 NM C
R121 NM B
C180 DCH1201-A 10u
C187 0.01u/16
VRPD
RF+
RF-
C188 0.01u/16
C181 4.7u/6.3
R137 220 C176 22p/50
R131 220 C166 22p/50
R130 220 C165 22p/50
R139 220 C177 22p/50
R122 NM S3
R102 NM S2
R101 NM S1
R123 NM S4
R307 2.2k SW1
D 2/5
D 2/5,3/5, 4/5
CN103
NM
DRST 1
NC 2
DDI 3
GNDD 4
DDO 5
NC 6
DMS 7
GNDD 8
DCK 9
GNDD 10
NC 11
NC 12
NC 13
V+3D 14
R236 NM
R237 NM
R239 NM
R238 NM
R241 NM
R240 NM
R243 NM
R242 NM
R245 NM
R244 NM
C199 NM
GNDD
DRST
DDI
DDO
DMS
DCK
To FRONT
CN601
DKN1402-A
LPS2 5
GNDD 4
LPS1 3
BLACK 2
RED 1
V+3D
R601 10k
R602 10k
R603 1k OPEN
R604 1k CLOSE
㉑
⑳
To SPDL
CN501
DKN1312-A
V+5M
VCC 12
HU+ 11
HU- 10
HV+ 9
HV- 8
HW+ 7
HW- 6
HB 5
U 4
V 3
W 2
GNDD 1
C533 NM
C534 NM
C535 NM
GNDM
To STEPPER
CN502
DKN1288-A
ST2+ 4
ST2- 3
ST1- 2
ST1+ 1
IC501
BD7956F
1
2 LDO-
LDO+
3 VCC
4 ACTIN1
5 ACTIN2
6 TJMON
7 BTHC
8 SPVM_S
9 PGND1
10 PGND2
11 U
12 SPVM1
13 V
14 fin1
15 PGND3
16 W
17 SPVM2
18 SPRNF
19 HB
20 HU+
21 HU-
22 HV+
23 HV-
24 HW+
25 HW-
26 SPIN
27 DGND
C510 68p/50
R516 12k
R515 33k
C509 33p/50
C508 1000p/50
C515 0.1u/25
C501 0.1u/16
C503 470p/50
C502 DCH1263-A 10u (Size2125)
R501 DCN1171-A 0.47
R502 DCN1172-A 0.33
C511 1u/16
STBY
R6001 NM
TP6001
TP6002
STBY
R322 NM
R323 NM
GNDS
GNDD


D 2/5
D 2/5
V+5M
VREF16
V+12M
FDRV
TDRV
TP520
TP521
TP522
TP523
R516
12k
R515
33k
C509
33p/50
IC501
BD7956FS
LDO-
LDO+
VCC
ACTIN1
ACTIN2
TJMON
BTHC
SPVM_S
PGND1
PGND2
U
SPVM1
V
fin1
PGND3
W
SPVM2
SPRNF
HB
HU+
HU-
HV+
HV-
HW+
HW-
SPIN
DGND
ACO1+
ACO1-
ACO2+
ACO2-
ACO3+
ACO3-
AVM
ACTIN3
LDIN
AGND
SPCNF
FG
VC
fin2
SLO1+
SLO1-
SLO2+
SLO2-
SLGND
CTL2
CTL1
SLRNF2
SLRNF1
SLVDD
SLIN2
SLIN1
DVCC
C506
NM
C507
NM
T+
T-
F+
F-
TP519
TP501
C503
470p/50
C505
0.1u/25
C532
0.1u/10
C516
0.1u/10
R505
12k
LO
C504
0.1u/10
FG
C511
1u/16
C536
NM
C537
NM
ST1+
ST1-
ST2+
ST2-
⑲
R504
1k
XDMUTE2
R503
1k
XDMUTE1
C513
0.1u/16
R511
1.8
R510
1.8
C512
0.1u/16
C514
0.1u/25
R507
1k
SL2
R506
1k
SL1
⑱
MDRV
GNDM
V+3D
C286
10u
DCH1201-A
C280
1u
C287
1u
C281
1u
C288
0.1u/16
C282
1u
C283
1u
C289
1000p/50
IC201
VDD1
DQ0
VDDQ1
DQ1
DQ2
VSSQ1
DQ3
DQ4
VDDQ2
DQ5
DQ6
VSSQ2
DQ7
VDD2
LDQM
WE
CAS
RAS
CS
BA0
BA1
A10/AP
A0
A1
A2
A3
VDD3
VSS3
DQ15
VSSQ4
DQ14
DQ13
VDDQ4
DQ12
DQ11
VSSQ3
DQ10
DQ9
VDDQ3
DQ8
VSS2
N.C/RFU
UDQM
CLK
CKE
N.C
A11
A9
A8
A7
A6
A5
A4
VSS1
K4S641632K-UC60
GNDD
R319
33
R320
33
MD0
MD1
MD2
MD3
MD4
MD5
MD6
MD7
TP212
LDQM
WEZ
CASZ
RASZ
MBA
MA10
MA0
MA1
MA2
MA3
R318
33
R317
33
MD15
MD14
MD13
MD12
TP6121
MD11
MD10
MD9
MD8
C285
1u
C290
0.1u/16
C284
1u
C291
1000p/50
UDQM
R281
0
MCLK
MCKE
MA11
MA9
MA8
MA7
MA6
MA5
MA4
V+3D
V+3D
R219
4.7k
R220
4.7k
MD0
MD1
MD2
MD5
R223
22
R222
47k
R221
47k
CN201
VKN2029-A
D 2/5
HADRS13
TP201
TP202
TP211
TP203
TP204
TP205
TP206
TP210
TP207
TP208
TP209
D2(PW)
A13(ATA)
D5(AG)
D1(SL)
D0(MA)
GND
XRESET
TX_FE
RX_FE
V+3D
D 2/5, 3/5, 4/5,
XRESET
REMO
REMI
GNDD
SO
SCLK
V+3D
V+3D
R201
10k
IC200
CSOZ
SI
CE
SO
WP
VSS
VDD
HOLD
SCK
SI
C202
NM
C201
NM
C203
NM
SST25V016BCS-TBB
GNDD
GNDD
D 2/5
3B:2:11K

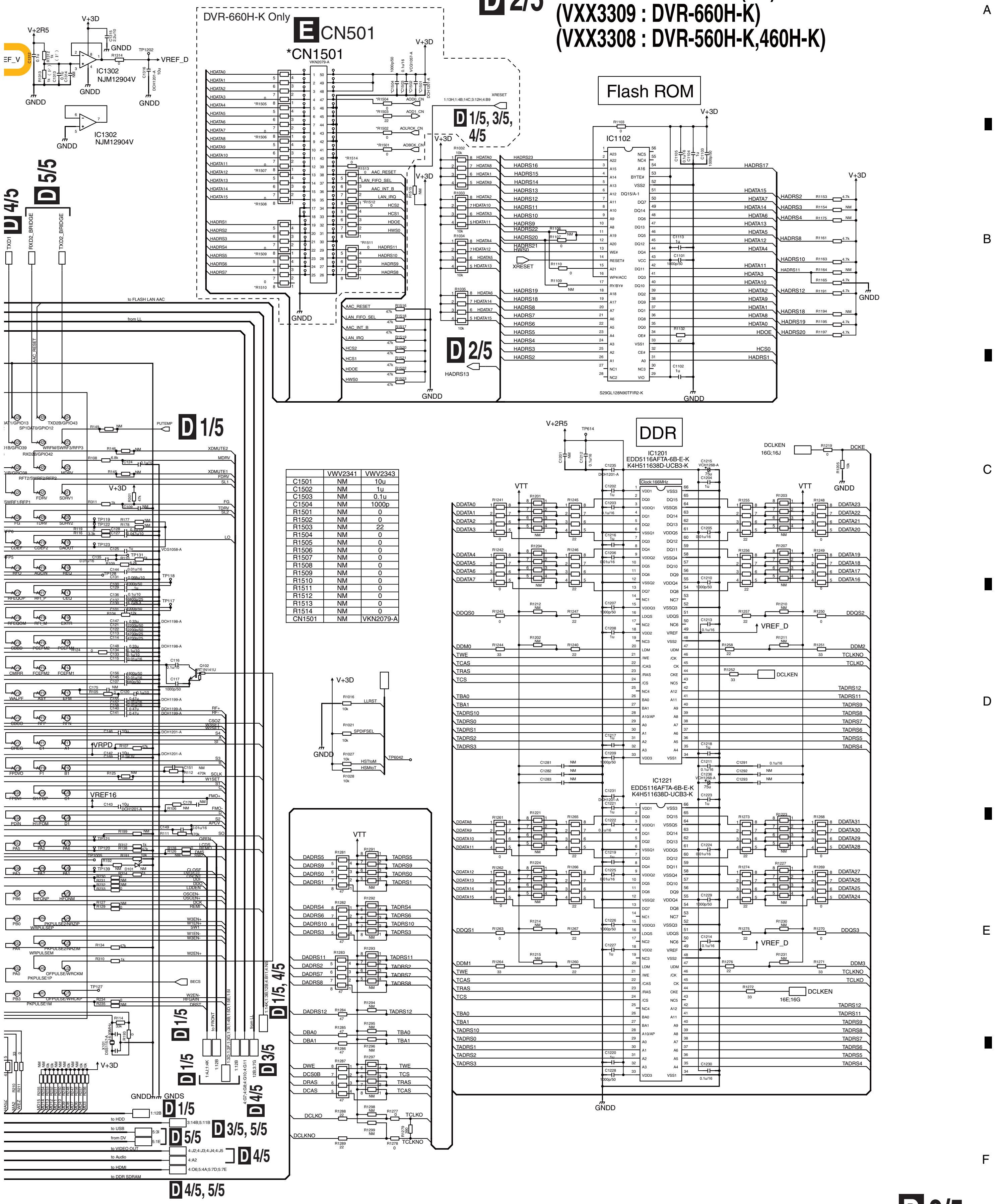
D 1/5

10.6 SERVICE MAIN ASSY (2/5)


A
B
C
D
E
F
EJTAG
CN1401
VKN2030-A
RS-232C
CN1402
RKN1048-A
HCL BPF
fsc BPF
MAIN CHIP
IC1301
NJM12904V
IC1302
V+3_DEC
V+1R0_DEC
V+3_ADC
VREF_V
V+3_DAC
V+3D_RF
V+3D_IO
V+1R5_IN
V+15A
V+15D
V+1R0_CORE
V+1R0_DLL
V+1R0_PLL
IC1001
MC-10050F1-507LU1A-K
D 4/5
D 5/5
24
23
GNDD
GNDS

D 2/5

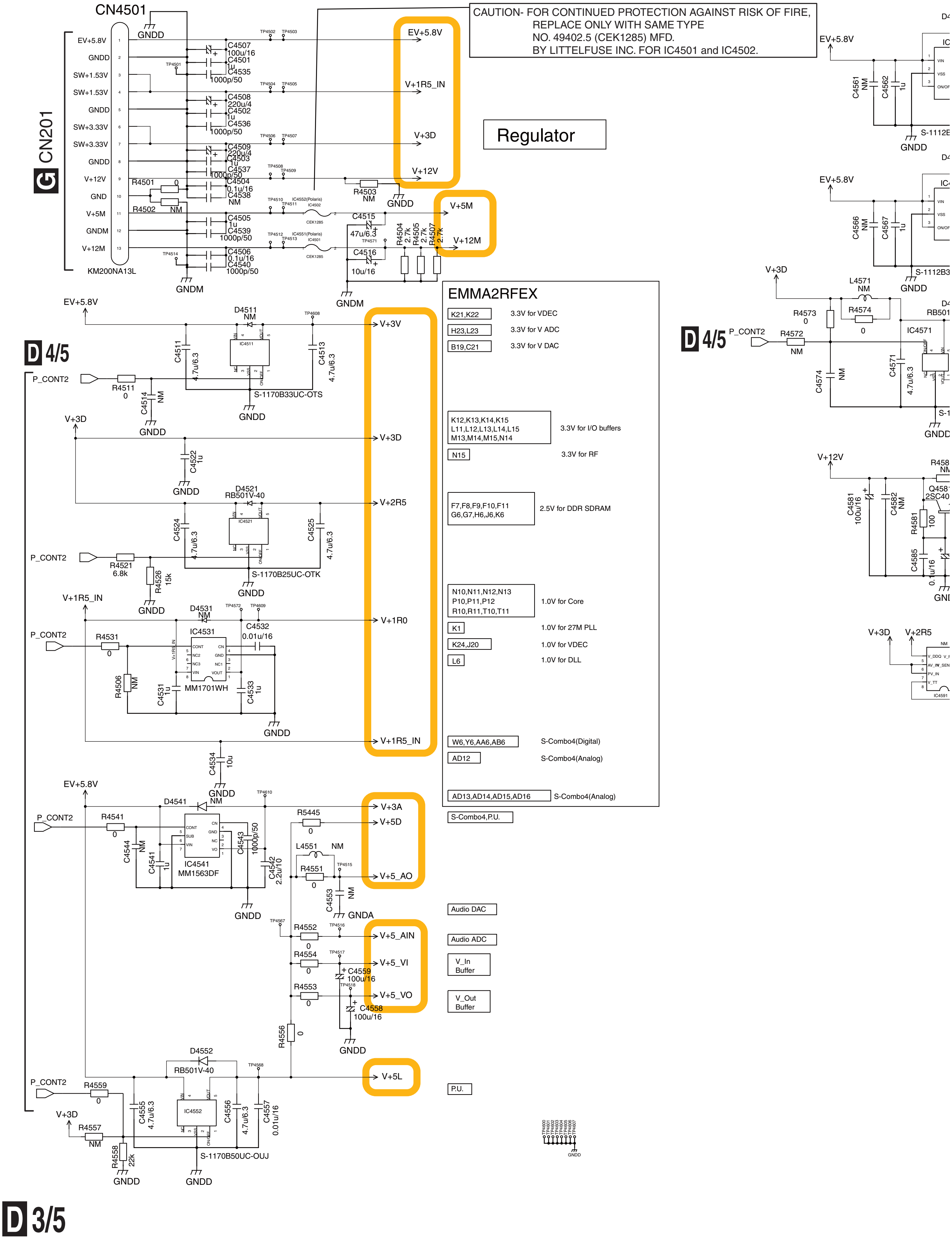
D 2/5 SERVICE MAIN ASSY (2/5)
(VXX3309 : DVR-660H-K)
(VXX3308 : DVR-560H-K,460H-K)



A
B
C
D
E
F
DVR-660H-K Only
E CN501
*CN1501
VKN2079-A
IC1302
NJM12904V
V+2R5
V+3D
VREF_D
GNDD
D 1/5, 3/5, 4/5
D 4/5
D 5/5
TXD1
RXD2_BRIDGE
TXD2_BRIDGE
to FLASH LAN AAC
from LL
Flash ROM
IC1102
S29GL128N90TFIR2-K
XRESET
D 2/5
HADRS13
D 1/5
DDR
IC1201
EDD5116AFTA-6B-E-K
K4H511638D-UCB3-K
IC1221
EDD5116AFTA-6B-E-K
K4H511638D-UCB3-K
Clock:166MHz
VTT
VREF_D
DCLKEN
DCKE
TCLKO
TCLKNO
VRPD
VREF16
D 1/5, 4/5
D 3/5
D 3/5, 5/5
D 4/5, 5/5
to HDD
to USB
from DV
to VIDEO OUT
to Audio
to HDMI
to DDR SDRAM
GNDS

	VWV2341	VWV2343
C1501	NM	10u
C1502	NM	1u
C1503	NM	0.1u
C1504	NM	1000p
R1501	NM	0
R1502	NM	0
R1503	NM	22
R1504	NM	0
R1505	NM	0
R1506	NM	0
R1507	NM	0
R1508	NM	0
R1509	NM	0
R1510	NM	0
R1511	NM	0
R1512	NM	0
R1513	NM	0
R1514	NM	0
CN1501	NM	VKN2079-A

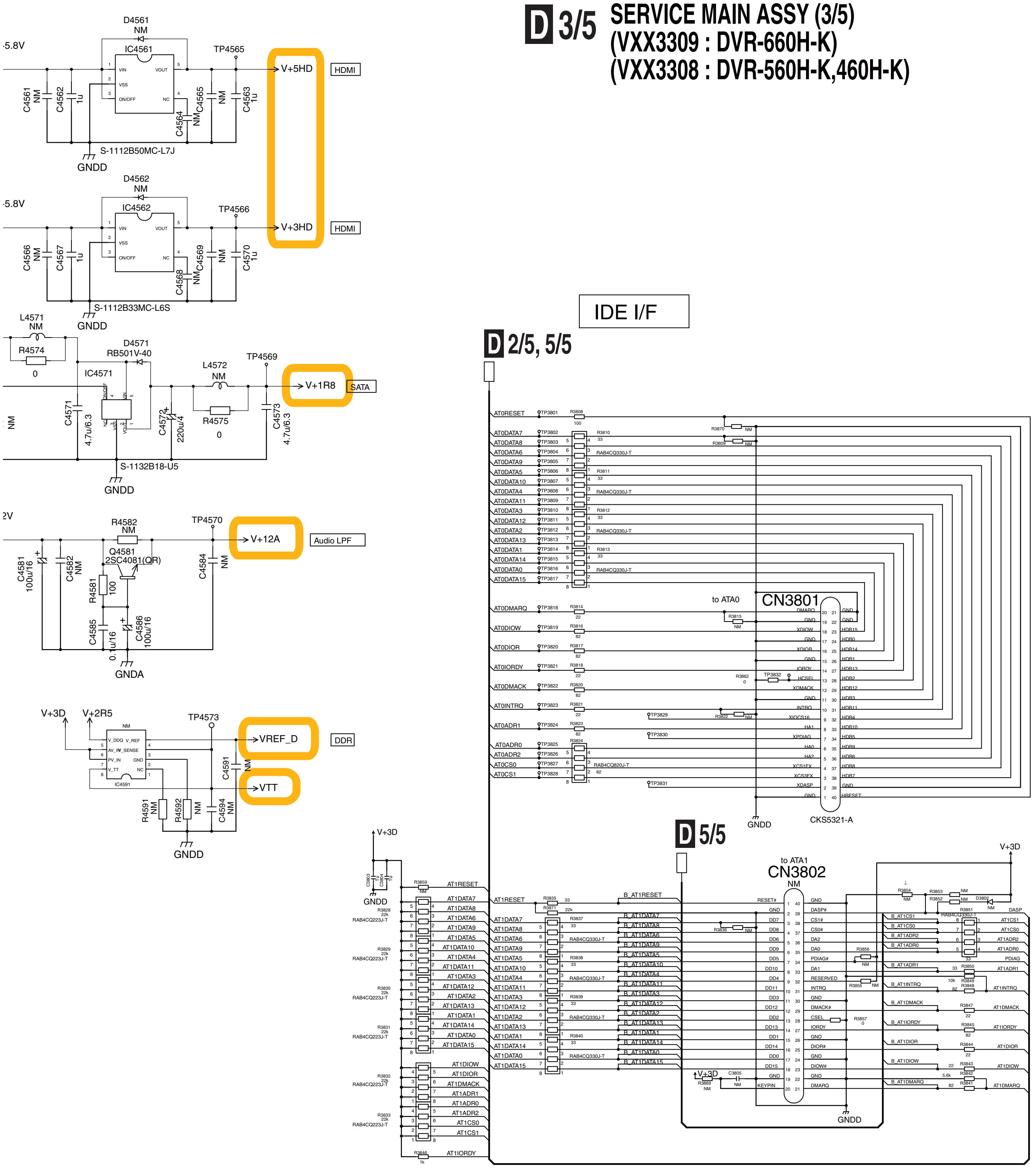
10.7 SERVICE MAIN ASSY (3/5)



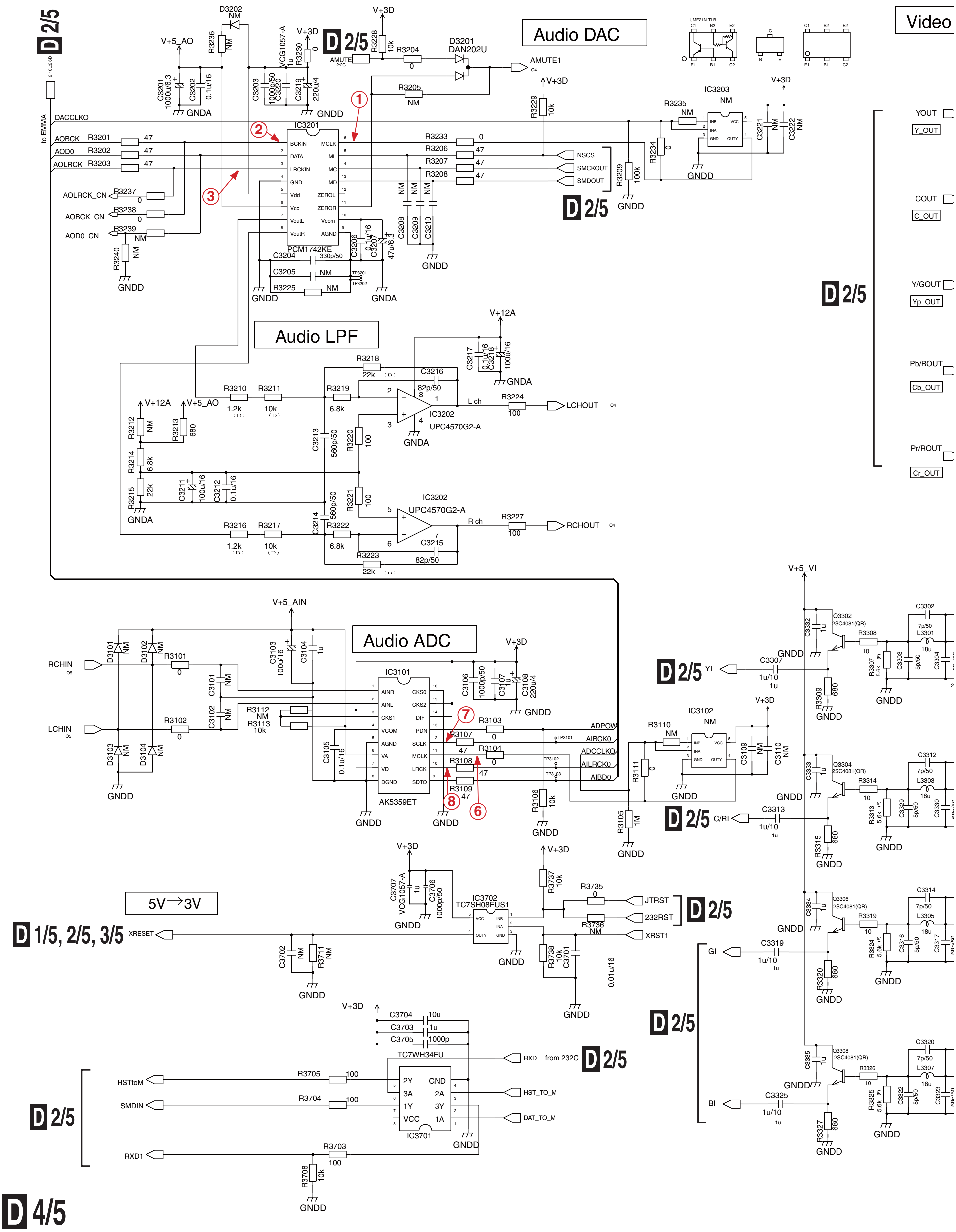
CAUTION- FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. 49402.5 (CEK1285) MFD. BY LITTELFUSE INC. FOR IC4501 and IC4502.

CN4501
GNDD
G CN201
EV+5.8V
GNDD
SW+1.53V
SW+1.53V
GNDD
SW+3.33V
SW+3.33V
GNDD
V+12V
GND
V+5M
GNDM
V+12M
KM200NA13L
GNDM
C4507 100u/16
C4501 1u
C4535 1000p/50
C4508 220u/4
C4502 1u
C4536 1000p/50
C4509 220u/4
C4503 1u
C4537 1000p/50
C4504 0.1u/16
C4538 NM
C4505 1u
C4539 1000p/50
C4506 0.1u/16
C4540 1000p/50
R4501 0
R4502 NM
R4503 NM
GNDD
IC4502 (Polaris)
IC4501 (Polaris)
CEK1285
C4515 47u/6.3
C4516 10u/16
R4504 2.7k
R4505 2.7k
R4507 2.7k
GNDM
EV+5.8V
V+1R5_IN
V+3D
V+12V
V+5M
V+12M
Regulator
EV+5.8V
D 4/5
P_CONT2
R4511 0
C4514 NM
D4511 NM
IC4511
C4511 4.7u/6.3
C4513 4.7u/6.3
S-1170B33UC-OTS
GNDD
V+3V
V+3D
C4522 1u
GNDD
V+3D
D4521 RB501V-40
IC4521
C4524 4.7u/6.3
C4525 4.7u/6.3
V+2R5
P_CONT2
R4521 6.8k
R4526 15k
S-1170B25UC-OTK
GNDD
GNDD
V+1R5_IN
P_CONT2
R4531 0
R4506 NM
D4531 NM
IC4531
MM1701WH
C4531 1u
C4532 0.01u/16
C4533 1u
GNDD
V+1R0
V+1R5_IN
C4534 10u
GNDD
EV+5.8V
P_CONT2
R4541 0
C4544 NM
C4541 1u
D4541 NM
IC4541 MM1563DF
C4543 1000p/50
C4542 2.2u/10
GNDD
R5445 0
L4551 NM
R4551 0
C4553 NM
GNDA
V+3A
V+5D
V+5_AO
R4552 0
R4554 0
R4553 0
C4559 100u/16
C4558 100u/16
R4556 0
GNDD
V+5_AIN
V+5_VI
V+5_VO
P_CONT2
R4559 0
V+3D
R4557 NM
R4558 22k
D4552 RB501V-40
C4555 4.7u/6.3
IC4552
C4556 4.7u/6.3
C4557 0.01u/16
S-1170B50UC-OUJ
GNDD
GNDD
V+5L
EMMA2RFEX
K21,K22 3.3V for VDEC
H23,L23 3.3V for V ADC
B19,C21 3.3V for V DAC
K12,K13,K14,K15 L11,L12,L13,L14,L15 M13,M14,M15,N14 3.3V for I/O buffers
N15 3.3V for RF
F7,F8,F9,F10,F11 G6,G7,H6,J6,K6 2.5V for DDR SDRAM
N10,N11,N12,N13 P10,P11,P12 R10,R11,T10,T11 1.0V for Core
K1 1.0V for 27M PLL
K24,J20 1.0V for VDEC
L6 1.0V for DLL
W6,Y6,AA6,AB6 S-Combo4(Digital)
AD12 S-Combo4(Analog)
AD13,AD14,AD15,AD16 S-Combo4(Analog)
S-Combo4,P.U.
Audio DAC
Audio ADC
V_In Buffer
V_Out Buffer
P.U.
GNDD
EV+5.8V
C4561 NM
C4562 1u
S-1112B
GNDD
EV+5.8V
C4566 NM
C4567 1u
S-1112B3
GNDD
D 4/5
P_CONT2
V+3D
L4571 NM
R4573 0
R4574 0
R4572 NM
RB501
IC4571
C4574 NM
C4571 4.7u/6.3
GNDD
V+12V
C4581 100u/16
C4582 NM
Q4581 2SC40
R4581 100
C4585 0.1u/16
V+3D
V+2R5
IC4591
D 3/5

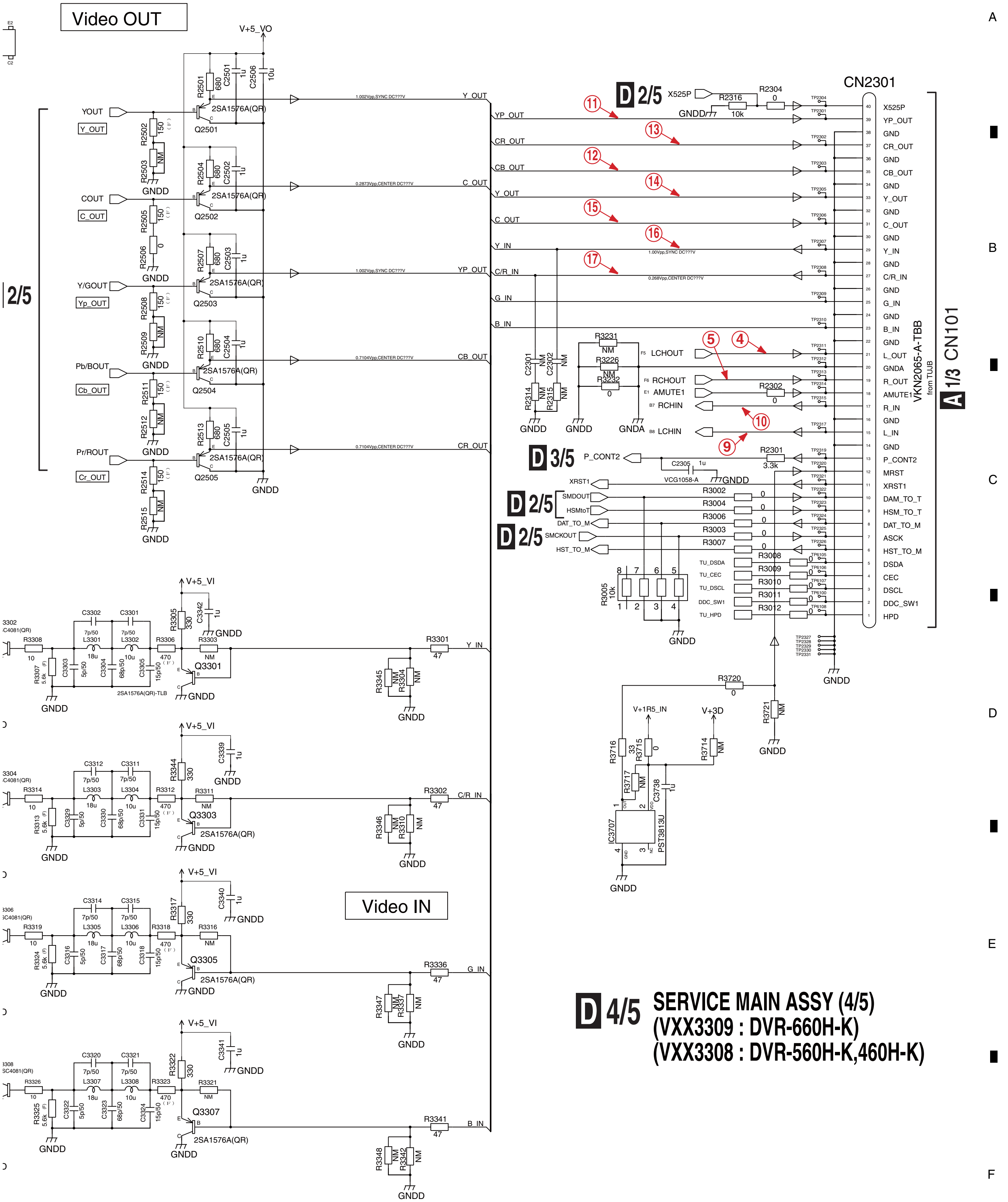
D 3/5 SERVICE MAIN ASSY (3/5)
(VXX3309 : DVR-660H-K)
(VXX3308 : DVR-560H-K,460H-K)


D4561
NM
IC4561
TP4565
V+5HD
HDMI
S-1112B50MC-L7J
GNDD
D4562
NM
IC4562
TP4566
V+3HD
HDMI
S-1112B33MC-L6S
L4571
NM
R4574
D4571
RB501V-40
IC4571
L4572
NM
TP4569
V+1R8
SATA
R4575
S-1132B18-U5
R4582
NM
TP4570
V+12A
Audio LPF
Q4581
2SC4081(QR)
R4581
C4585
C4586
100u/16
GNDA
V+3D
V+2R5
TP4573
VREF_D
DDR
VTT
IC4591
R4591
R4592
C4594
GNDD
IDE I/F
D 2/5, 5/5
to ATA0
CN3801
CKS5321-A
GNDD
D 5/5
to ATA1
CN3802
NM
V+3D
GNDD

10.8 SERVICE MAIN ASSY (4/5)



Audio DAC
Audio LPF
Audio ADC
Video
5V→3V
D 2/5
D 1/5, 2/5, 3/5
D 4/5
to EMMA
DACCLKO
AOBCK
AOD0
AOLRCK
AOLRCK_CN
AOBCK_CN
AOD0_CN
IC3201
PCM1742KE
BCKIN
DATA
LRCKIN
GND
Vdd
Vcc
VoutL
VoutR
MCLK
ML
MC
MD
ZEROL
ZEROR
Vcom
AGND
D3202 NM
D3201 DAN202U
AMUTE
AMUTE1
V+5_AO
V+3D
VCG1057-A
GNDA
GNDD
NSCS
SMCKOUT
SMDOUT
IC3203 NM
UMF21N-TLB
R3201 47
R3202 47
R3203 47
R3204 0
R3205 NM
R3206 47
R3207 47
R3208 47
R3209 100k
R3228 10k
R3229 10k
R3230 0
R3233 0
R3234 0
R3235 NM
R3236 NM
R3237 0
R3238 0
R3239 NM
R3240 NM
C3201 1000u/6.3
C3202 0.1u/16
C3203 1000p/50
C3204 330p/50
C3205 NM
C3206 0.1u/16
C3207 47u/6.3
C3208 NM
C3209 NM
C3210 NM
C3219 220u/4
C3220 1u
C3221 NM
C3222 NM
R3225 NM
TP3201
TP3202
V+12A
IC3202
UPC4570G2-A
L ch
R ch
LCHOUT
RCHOUT
R3210 1.2k
R3211 10k
R3212 NM
R3213 680
R3214 6.8k
R3215 22k
R3216 1.2k
R3217 10k
R3218 22k
R3219 6.8k
R3220 100
R3221 100
R3222 6.8k
R3223 22k
R3224 100
R3227 100
C3211 100u/16
C3212 0.1u/16
C3213 560p/50
C3214 560p/50
C3215 82p/50
C3216 82p/50
C3217 0.1u/16
C3218 100u/16
YOUT
Y_OUT
COUT
C_OUT
Y/GOUT
Yp_OUT
Pb/BOUT
Cb_OUT
Pr/ROUT
Cr_OUT
V+5_AIN
RCHIN
LCHIN
D3101 NM
D3102 NM
D3103 NM
D3104 NM
R3101 0
R3102 0
C3101 NM
C3102 NM
C3103 100u/16
C3104 1u
C3105 0.1u/16
C3106 1000p/50
C3107 1u
C3108 220u/4
IC3101
AK5359ET
AINR
AINL
CKS1
VCOM
AGND
VA
VD
DGND
CKS0
CKS2
DIF
PDN
SCLK
MCLK
LRCK
SDTO
R3112 NM
R3113 10k
R3103 0
R3104 0
R3105 1M
R3106 10k
R3107 47
R3108 47
R3109 47
R3110 NM
R3111 0
IC3102 NM
C3109 NM
C3110 NM
ADPOW
AIBCK0
ADCCLKO
AILRCK0
AIBD0
TP3101
TP3102
TP3103
V+5_VI
Q3302 2SC4081(QR)
Q3304 2SC4081(QR)
Q3306 2SC4081(QR)
Q3308 2SC4081(QR)
YI
C/RI
GI
BI
C3302 7p/50
C3307 1u/10
C3313 1u/10
C3319 1u/10
C3325 1u/10
L3301 18u
L3303 18u
L3305 18u
L3307 18u
R3308 10
R3314 10
R3319 10
R3326 10
R3307 5.6k
R3313 5.6k
R3324 5.6k
R3325 5.6k
R3309 680
R3315 680
R3320 680
R3327 680
C3303 5p/50
C3329 5p/50
C3316 5p/50
C3322 5p/50
C3332 1u
C3333 1u
C3334 1u
C3335 1u
C3312 7p/50
C3314 7p/50
C3320 7p/50
XRESET
IC3702
TC7SH08FUS1
JTRST
232RST
XRST1
R3735 0
R3736 NM
R3737 10k
R3738 10k
R3711 NM
C3701 0.01u/16
C3702 NM
C3706 1000p/50
C3707 1u
C3704 10u
C3703 1u
C3705 1000p
TC7WH34FU
IC3701
2Y
3A
1Y
VCC
GND
2A
3Y
1A
RXD
from 232C
HST_TO_M
DAT_TO_M
HSTtoM
SMDIN
RXD1
R3705 100
R3704 100
R3703 100
R3708 10k
①
②
③
⑥
⑦
⑧
1
2
3
4
A
B
C
D
E
F


Video OUT
V+5_VO
YOUT
Y_OUT
COUT
C_OUT
Y/GOUT
Yp_OUT
Pb/BOUT
Cb_OUT
Pr/ROUT
Cr_OUT
2/5
R2501 680
C2501 1u
C2506 10u
R2502 150
R2503 NM
R2504 680
C2502 1u
R2505 150
R2506 0
R2507 680
C2503 1u
R2508 150
R2509 NM
R2510 680
C2504 1u
R2511 150
R2512 NM
R2513 680
C2505 1u
R2514 150
R2515 NM
2SA1576A(QR)
Q2501
Q2502
Q2503
Q2504
Q2505
GNDD
1.002Vpp,SYNC DC???V
0.2873Vpp,CENTER DC???V
0.7104Vpp,CENTER DC???V
Y_OUT
C_OUT
YP_OUT
CB_OUT
CR_OUT
YP_OUT
CR_OUT
CB_OUT
Y_OUT
C_OUT
Y_IN
C/R_IN
G_IN
B_IN
D 2/5
X525P
R2316 10k
R2304 0
GNDD
CN2301
⑪ ⑬ ⑫ ⑭ ⑮ ⑯ ⑰ ⑤ ④ ⑩ ⑨
1.00Vpp,SYNC DC???V
0.268Vpp,CENTER DC???V
X525P
YP_OUT
GND
CR_OUT
GND
CB_OUT
GND
Y_OUT
GND
C_OUT
GND
Y_IN
GND
C/R_IN
GND
G_IN
GND
B_IN
GND
L_OUT
GNDA
R_OUT
AMUTE1
R_IN
GND
L_IN
GND
P_CONT2
MRST
XRST1
DAM_TO_T
HSM_TO_T
DAT_TO_M
ASCK
HST_TO_M
DSDA
CEC
DSCL
DDC_SW1
HPD
VKN2065-A-TBB
from TUUB
A 1/3 CN101
C2301 NM
C2302 NM
R2314 NM
R2315 NM
R3231 NM
R3226 NM
R3232 0
LCHOUT
RCHOUT
AMUTE1
RCHIN
LCHIN
R2302 0
GNDA
D 3/5
P_CONT2
C2305 1u
R2301 3.3k
VCG1058-A
XRST1
D 2/5
SMDOUT
HSMtoT
DAT_TO_M
D 2/5
SMCKOUT
HST_TO_M
R3002 0
R3004 0
R3006 0
R3003 0
R3007 0
TU_DSDA
TU_CEC
TU_DSCL
DDC_SW1
TU_HPD
R3008 0
R3009 0
R3010 0
R3011 0
R3012 0
R3005 10k
R3720 0
R3721 NM
V+1R5_IN
V+3D
R3716 33
R3715 0
R3714 NM
R3717 NM
C3738 1u
IC3707
PST3813U
Video IN
V+5_VI
C3302 C3301 7p/50
L3301 18u
L3302 10u
R3308 10
R3307 5.6k
C3303 5p/50
C3304 68p/50
C3305 15p/50
R3306 470
R3305 330
C3342 1u
R3303 NM
Q3301
2SA1576A(QR)-TLB
R3301 47
Y_IN
R3345 NM
R3304 NM
C3312 C3311 7p/50
L3303 18u
L3304 10u
R3314 10
R3313 5.6k
C3329 5p/50
C3330 68p/50
C3331 15p/50
R3312 470
R3344 330
C3339 1u
R3311 NM
Q3303
R3302 47
C/R_IN
R3346 NM
R3310 NM
C3314 C3315 7p/50
L3305 18u
L3306 10u
R3319 10
R3324 5.6k
C3316 5p/50
C3317 68p/50
C3318 15p/50
R3318 470
R3317 330
C3340 1u
R3316 NM
Q3305
R3336 47
G_IN
R3347 NM
R3337 NM
C3320 C3321 7p/50
L3307 18u
L3308 10u
R3326 10
R3325 5.6k
C3322 5p/50
C3323 68p/50
C3324 15p/50
R3323 470
R3322 330
C3341 1u
R3321 NM
Q3307
R3341 47
B_IN
R3348 NM
R3342 NM
GNDD

D 4/5 SERVICE MAIN ASSY (4/5)
(VXX3309 : DVR-660H-K)
(VXX3308 : DVR-560H-K,460H-K)

10.9 SERVICE MAIN ASSY (5/5)

A

D 5/5 SERVICE MAIN ASSY (5/5)
(VXX3309 : DVR-660H-K)
(VXX3308 : DVR-560H-K,460H-K)

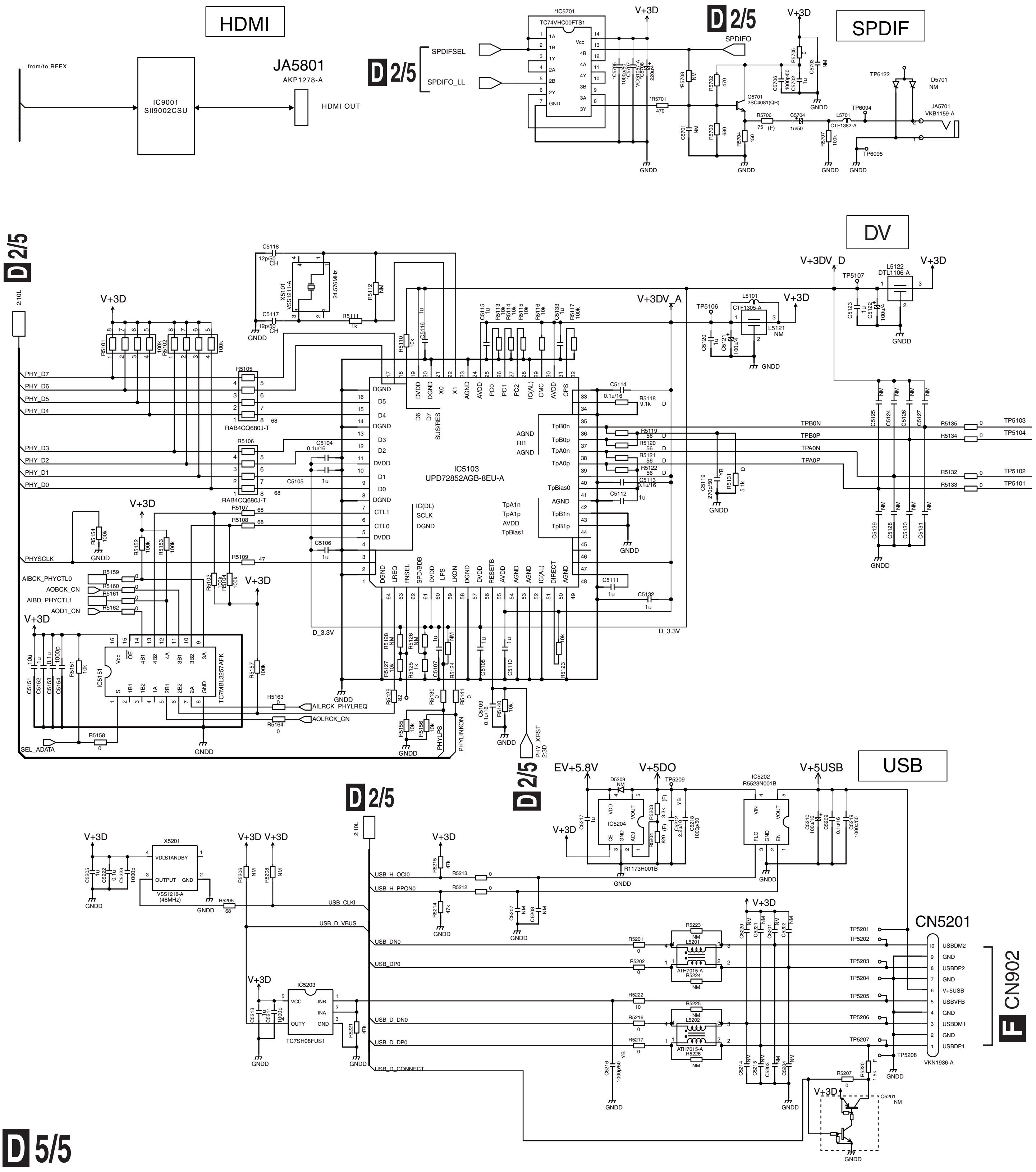
B

C

D

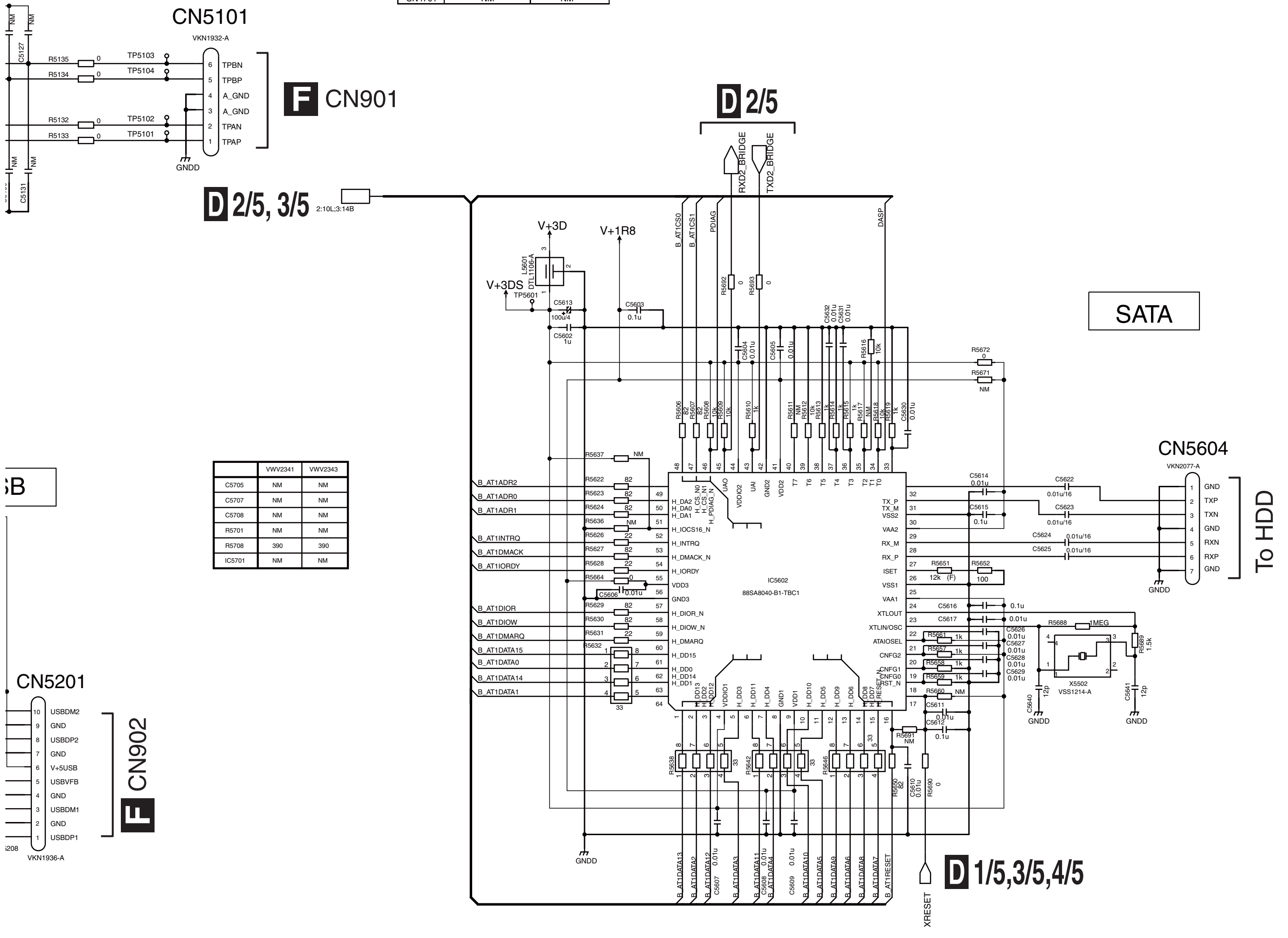
E

F


HDMI
from/to RFEX
IC9001
SiI9002CSU
JA5801
AKP1278-A
HDMI OUT
D 2/5
SPDIFSEL
SPDIFO_LL
*IC5701
TC74VHC00FTS1
V+3D
D 2/5
SPDIFO
V+3D
SPDIF
Q5701
2SC4081(QR)
L5701
CTF1382-A
TP6122
D5701
NM
TP6094
JA5701
VKB1159-A
TP6095
GNDD
DV
V+3DV_D
V+3D
L5122
DTL1106-A
TP5107
V+3DV_A
V+3D
L5101
CTF1305-A
L5121
NM
TP5106
D 2/5
2:10L
V+3D
PHY_D7
PHY_D6
PHY_D5
PHY_D4
PHY_D3
PHY_D2
PHY_D1
PHY_D0
RAB4CQ680J-T
X5101
VSS1211-A
24.576MHz
IC5103
UPD72852AGB-8EU-A
TPB0N
TPB0P
TPA0N
TPA0P
TP5103
TP5104
TP5102
TP5101
PHYSCLK
AIBCK_PHYCTL0
AOBCK_CN
AIBD_PHYCTL1
AOD1_CN
V+3D
IC5151
TC7MBL3257AFK
AILRCK_PHYLREQ
AOLRCK_CN
SEL_ADATA
D_3.3V
D_3.3V
PHYLPS
PHYLINKON
PHY_XRST
2:3D
D 2/5
USB
EV+5.8V
V+5DO
V+5USB
IC5204
R1173H001B
IC5202
R5523N001B
D 2/5
2:10L
V+3D
X5201
VSS1218-A
(48MHz)
V+3D V+3D
V+3D
USB_H_OCI0
USB_H_PPON0
USB_CLKI
USB_D_VBUS
USB_DN0
USB_DP0
V+3D
IC5203
TC7SH08FUS1
USB_D_DN0
USB_D_DP0
USB_D_CONNECT
L5201
ATH7015-A
L5202
ATH7015-A
CN5201
VKN1936-A
USBDM2
GND
USBDP2
GND
V+5USB
USBVFB
GND
USBDM1
GND
USBDP1
F CN902
Q5201
NM
GNDD
D 5/5

	VWV2341	VWV2343
C4701	NM	NM
C4702	NM	NM
C4703	NM	NM
C4704	NM	NM
C4705	NM	NM
C4706	NM	NM
R4701	NM	NM
R4702	NM	NM
R4703	NM	NM
R4704	NM	NM
R4705	NM	NM
R4706	NM	NM
R4707	NM	NM
R4708	NM	NM
R4709	NM	NM
R4710	NM	NM
R4711	NM	NM
R4712	NM	NM
R4713	NM	NM
R4714	NM	NM
R4715	10k	10k
R4716	10k	10k
R4717	10k	10k
R4718	0	0
R4719	0	0
R4720	0	0
R4721	100	100
R4722	100	100
R4723	47	47
R4724	22	22
R4725	22	22
R4726	22	22
R4727	NM	NM
R4728	10k	10k
R4729	NM	NM
R4730	NM	NM
IC4701	NM	NM
IC4702	NM	NM
IC4703	NM	NM
CN4701	NM	NM

D5701
NM
JA5701
VKB1159-A
V+3D



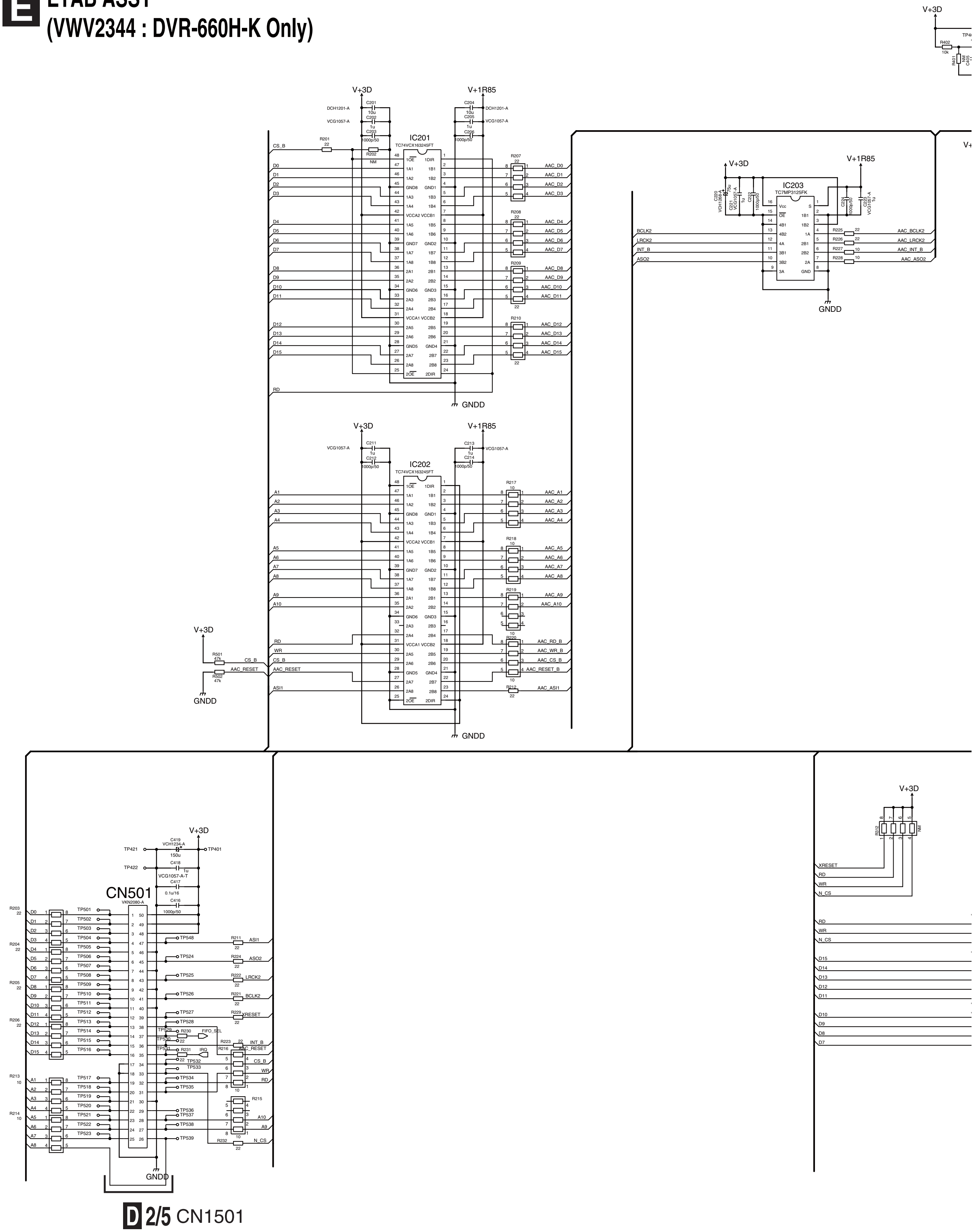
CN5101
VKN1932-A
TPBN
TPBP
A_GND
A_GND
TPAN
TPAP
TP5103
TP5104
TP5102
TP5101
R5135
R5134
R5132
R5133
C5127
C5131
GNDD
F CN901
D 2/5
RXD2_BRIDGE
TXD2_BRIDGE
D 2/5, 3/5
2:10L;3:14B
V+3D
V+1R8
V+3DS
TP5601
L5601
DTL1106-A
C5613
100u/4
C5602
1u
C5603
0.1u
B_AT1CS0
B_AT1CS1
PDIAG
DASP
IC5602
88SA8040-B1-TBC1
SATA
CN5604
VKN2077-A
GND
TXP
TXN
GND
RXN
RXP
GND
To HDD
X5502
VSS1214-A
R5688
1MEG
R5689
1.5k
C5640
12p
C5641
12p
B_AT1ADR2
B_AT1ADR0
B_AT1ADR1
B_AT1INTRQ
B_AT1DMACK
B_AT1IORDY
B_AT1DIOR
B_AT1DIOW
B_AT1DMARQ
B_AT1DATA15
B_AT1DATA0
B_AT1DATA14
B_AT1DATA1
B_AT1DATA13
B_AT1DATA2
B_AT1DATA12
B_AT1DATA3
B_AT1DATA11
B_AT1DATA4
B_AT1DATA10
B_AT1DATA5
B_AT1DATA9
B_AT1DATA6
B_AT1DATA8
B_AT1DATA7
B_AT1RESET
XRESET
D 1/5,3/5,4/5
CN5201
VKN1936-A
USBDM2
GND
USBDP2
GND
V+5USB
USBVFB
GND
USBDM1
GND
USBDP1
F CN902
SB

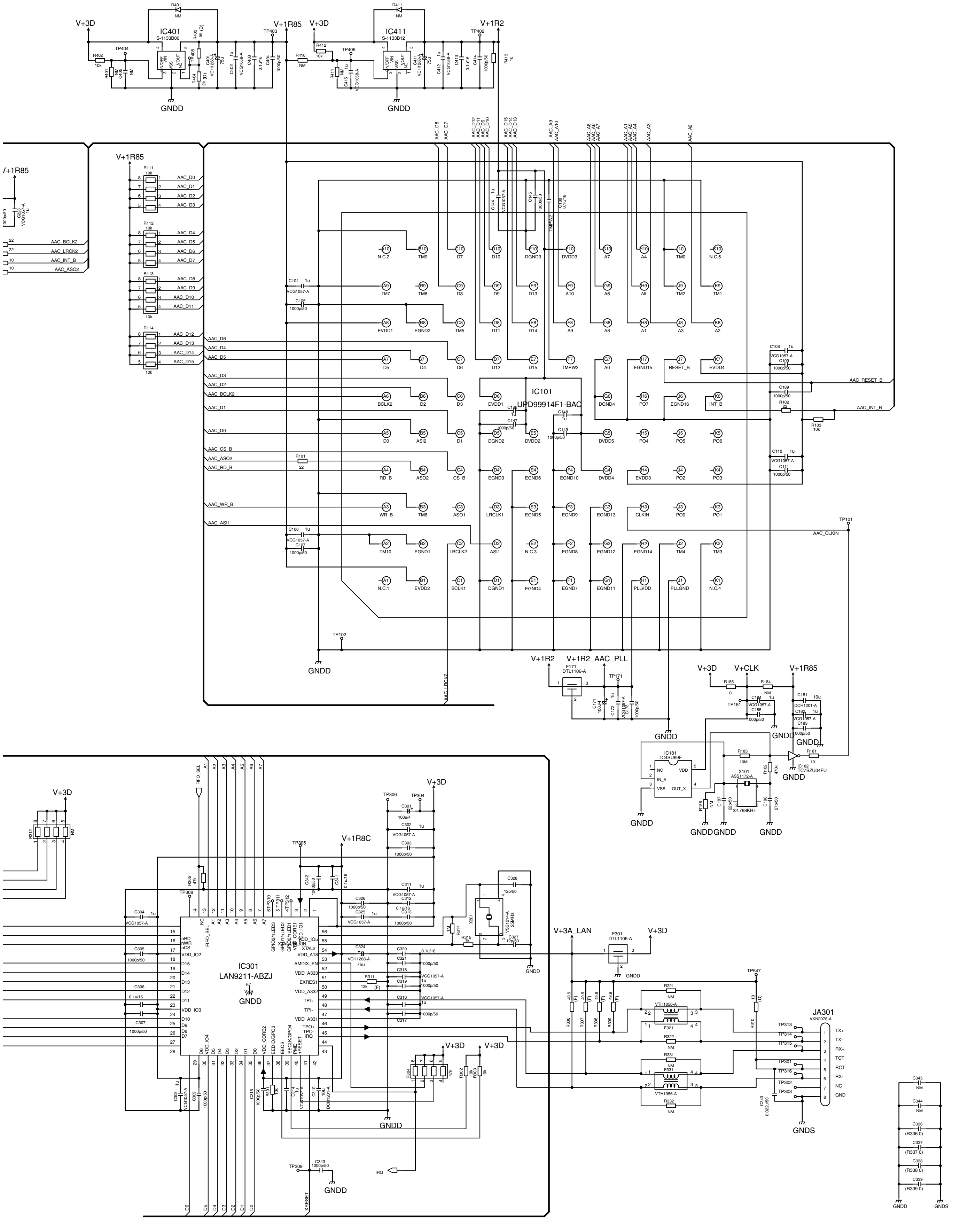
	VWV2341	VWV2343
C5705	NM	NM
C5707	NM	NM
C5708	NM	NM
R5701	NM	NM
R5708	390	390
IC5701	NM	NM

D 5/5

10.10 ETAB ASSY (DVR-660H-K ONLY)

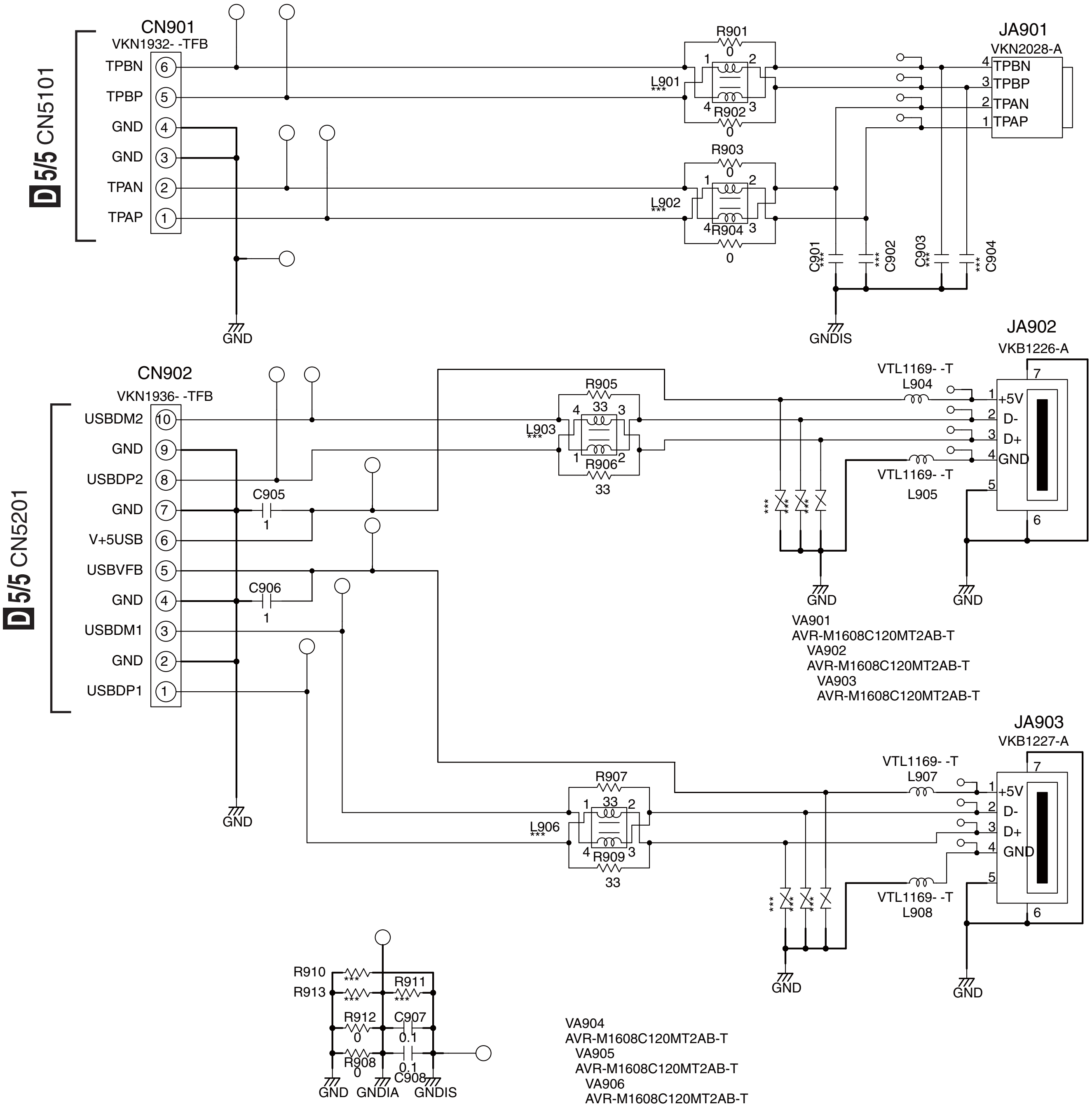
E ETAB ASSY
(VWV2344 : DVR-660H-K Only)


V+3D
V+1R85
C201 10u
C202 1u
C203 1000p/50
C204 10u
C205 1u
C206 1000p/50
DCH1201-A
VCG1057-A
IC201
TC74VCX163245FT
R201 22
R202 NM
CS_B
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
RD
R207 22
R208 22
R209 22
R210 22
AAC_D0
AAC_D1
AAC_D2
AAC_D3
AAC_D4
AAC_D5
AAC_D6
AAC_D7
AAC_D8
AAC_D9
AAC_D10
AAC_D11
AAC_D12
AAC_D13
AAC_D14
AAC_D15
GNDD
IC202
TC74VCX163245FT
C211 1u
C212 1000p/50
C213 1u
C214 1000p/50
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
WR
AAC_RESET
ASI1
R217 10
R218 10
R219 10
R220 10
R212 22
AAC_A1
AAC_A2
AAC_A3
AAC_A4
AAC_A5
AAC_A6
AAC_A7
AAC_A8
AAC_A9
AAC_A10
AAC_RD_B
AAC_WR_B
AAC_CS_B
AAC_RESET_B
AAC_ASI1
R501 47k
R502 47k
IC203
TC7MP3125FK
C220 VCH1268-A 75u
C221 VCG1057-A 1u
C222 1000p/50
C223 1000p/50
C224 VCG1057-A 1u
BCLK2
LRCK2
INT_B
ASO2
R225 22
R226 22
R227 10
R228 10
AAC_BCLK2
AAC_LRCK2
AAC_INT_B
AAC_ASO2
R402 10k
R401 NM
C405
TP4
CN501
VKN2080-A
C419 VCH1234-A 150u
C418 VCG1057-A-T 1u
C417 0.1u/16
C416 1000p/50
TP421
TP422
TP401
R203 22
R204 22
R205 22
R206 22
R213 10
R214 10
TP501
TP502
TP503
TP504
TP505
TP506
TP507
TP508
TP509
TP510
TP511
TP512
TP513
TP514
TP515
TP516
TP517
TP518
TP519
TP520
TP521
TP522
TP523
TP548
TP524
TP525
TP526
TP527
TP528
TP529
TP530
TP531
TP532
TP533
TP534
TP535
TP536
TP537
TP538
TP539
R211 22
R224 22
R222 22
R221 22
R229 22
R230 22
R231 22
R223 22
R216
R215
R232 22
ASI1
ASO2
LRCK2
BCLK2
XRESET
FIFO_SEL
IRQ
INT_B
AAC_RESET
CS_B
WR
RD
A10
A9
N_CS
R312 NM
XRESET
RD
WR
N_CS
D15
D14
D13
D12
D11
D10
D9
D8
D7
D 2/5 CN1501


V+3D
IC401
S-1133B00
D401
NM
V+1R85
TP403
TP404
R402
10k
R410
NM
GNDD
IC411
S-1133B12
D411
V+1R2
TP402
TP406
R412
10k
R413
1k
VCH1268-A
75u
VCG1058-A
0.1u/16
1000p/50
V+1R85
R111
R112
R113
R114
10k
AAC_D0
AAC_D1
AAC_D2
AAC_D3
AAC_D4
AAC_D5
AAC_D6
AAC_D7
AAC_D8
AAC_D9
AAC_D10
AAC_D11
AAC_D12
AAC_D13
AAC_D14
AAC_D15
AAC_BCLK2
AAC_LRCK2
AAC_INT_B
AAC_ASO2
AAC_CS_B
AAC_ASO2
AAC_RD_B
AAC_WR_B
AAC_ASI1
AAC_A0
AAC_A1
AAC_A2
AAC_A3
AAC_A4
AAC_A5
AAC_A6
AAC_A7
AAC_A8
AAC_A9
AAC_A10
IC101
UPD99914F1-BAC
N.C.2
TM9
D7
D10
DGND3
DVDD3
A7
A4
TM0
N.C.5
TM7
TM8
D8
D9
D13
A10
A6
A5
TM2
TM1
EVDD1
EGND2
TM5
D11
D14
A9
A8
A1
A3
A2
D5
D4
D6
D12
D15
TMPW2
A0
EGND15
RESET_B
EVDD4
BCLK2
D2
D3
DVDD1
DGND4
PO7
EGND16
INT_B
D0
ASI2
D1
DGND2
DVDD2
DVDD5
PO4
PO5
PO6
RD_B
ASO2
CS_B
EGND3
EGND6
EGND10
DVDD4
EVDD3
PO2
PO3
WR_B
TM6
ASO1
LRCLK1
EGND5
EGND9
EGND13
CLKIN
PO0
PO1
TM10
EGND1
LRCLK2
ASI1
N.C.3
EGND8
EGND12
EGND14
TM4
TM3
N.C.1
EVDD2
BCLK1
DGND1
EGND4
EGND7
EGND11
PLLVDD
PLLGND
N.C.4
C104
C105
C106
C107
C108
C109
C110
C111
C144
C145
C146
C147
C148
C149
C186
C189
VCG1057-A
1u
1000p/50
R101
22
R102
22
R103
10k
AAC_RESET_B
AAC_INT_B
TP101
AAC_CLKIN
TP102
GNDD
AAC_LRCK2
V+1R2
V+1R2_AAC_PLL
F171
DTL1106-A
TP171
C171
C172
V+3D
V+CLK
V+1R85
R185
R184
NM
TP181
C181
DCH1201-A
10u
C184
C185
C182
C183
IC181
TC4SU69F
NC
IN_A
VSS
VDD
OUT_X
R183
10M
R182
470k
R181
10
IC182
TC7SZU04FU
X101
ASS1172-A
32.768KHz
R186
C187
C186
22p/50
27p/50
V+3D
R312
NM
FIFO_SEL
A1
A2
A3
A4
A5
A7
R305
47k
TP308
TP305
V+1R8C
TP306
TP304
V+3D
C301
100u/4
C302
C303
C311
C312
C313
C341
C342
C326
C325
C328
12p/50
X301
VSS1214-A
25MHz
C327
R314
1M
R315
C304
C305
C306
C307
IC301
LAN9211-ABZJ
nRD
nWR
nCS
VDD_IO2
D15
D14
D13
D12
D11
VDD_IO3
D10
D9
D8
D7
D6
VDD_IO4
D5
D4
D3
D2
D1
D0
VDD_CORE2
EEDIO/GPO3
EECS
EECLK/GPO4
PME
nRESET
VDD_IO5
VDD_A18
XTAL2
XTAL1/CLKIN
VDD_A333
AMDIX_EN
EXRES1
VDD_A332
TPI+
TPI-
VDD_A331
TPO+
TPO-
IRQ
GPIO2/nLED3
GPIO1/nLED2
GPIO0/nLED1
VDD_CORE1
VDD_IO1
GNDD
C324
VCH1268-A
75u
C320
C321
C318
C319
C316
C317
R311
12k
(F)
R304
47k
R302
R303
10k
V+3D
C308
C309
C315
C314
C310
DCH1201-A
R301
TP309
C343
1000p/50
IRQ
XRESET
V+3A_LAN
F301
DTL1106-A
V+3D
TP547
R306
R307
R308
R309
49.9
(F)
R321
R322
R331
R332
NM
VTH1056-A
F321
F331
R310
10
(D)
JA301
VKN2078-A
TP313
TP314
TP315
TP301
TP316
TP302
TP303
TX+
TX-
RX+
TCT
RCT
RX-
NC
GND
C340
0.022u/50
GNDS
C345
C344
C336
(R336 0)
C337
(R337 0)
C338
(R338 0)
C339
(R339 0)
GNDD
GNDS

10.11 SERVICE DVUB ASSY

F SERVICE DVUB ASSY (YXX1001)



CN901
VKN1932- -TFB
TPBN 6
TPBP 5
GND 4
GND 3
TPAN 2
TPAP 1
D 5/5 CN5101
GND
R901 0
L901 ***
R902 0
R903 0
L902 ***
R904 0
JA901
VKN2028-A
4 TPBN
3 TPBP
2 TPAN
1 TPAP
C901 ***
C902 ***
C903 ***
C904 ***
GNDIS
CN902
VKN1936- -TFB
USBDM2 10
GND 9
USBDP2 8
GND 7
V+5USB 6
USBVFB 5
GND 4
USBDM1 3
GND 2
USBDP1 1
D 5/5 CN5201
C905 1
C906 1
R905 33
L903 ***
R906 33
GND
JA902
VKB1226-A
VTL1169- -T
L904
VTL1169- -T
L905
1 +5V
2 D-
3 D+
4 GND
5
6
7
VA901
AVR-M1608C120MT2AB-T
VA902
AVR-M1608C120MT2AB-T
VA903
AVR-M1608C120MT2AB-T
JA903
VKB1227-A
VTL1169- -T
L907
VTL1169- -T
L908
R907 33
L906 ***
R909 33
R910 ***
R913 ***
R911 ***
R912 0
C907 0.1
R908 0
C908 0.1
GND GNDIA GNDIS
VA904
AVR-M1608C120MT2AB-T
VA905
AVR-M1608C120MT2AB-T
VA906
AVR-M1608C120MT2AB-T

A

B

C

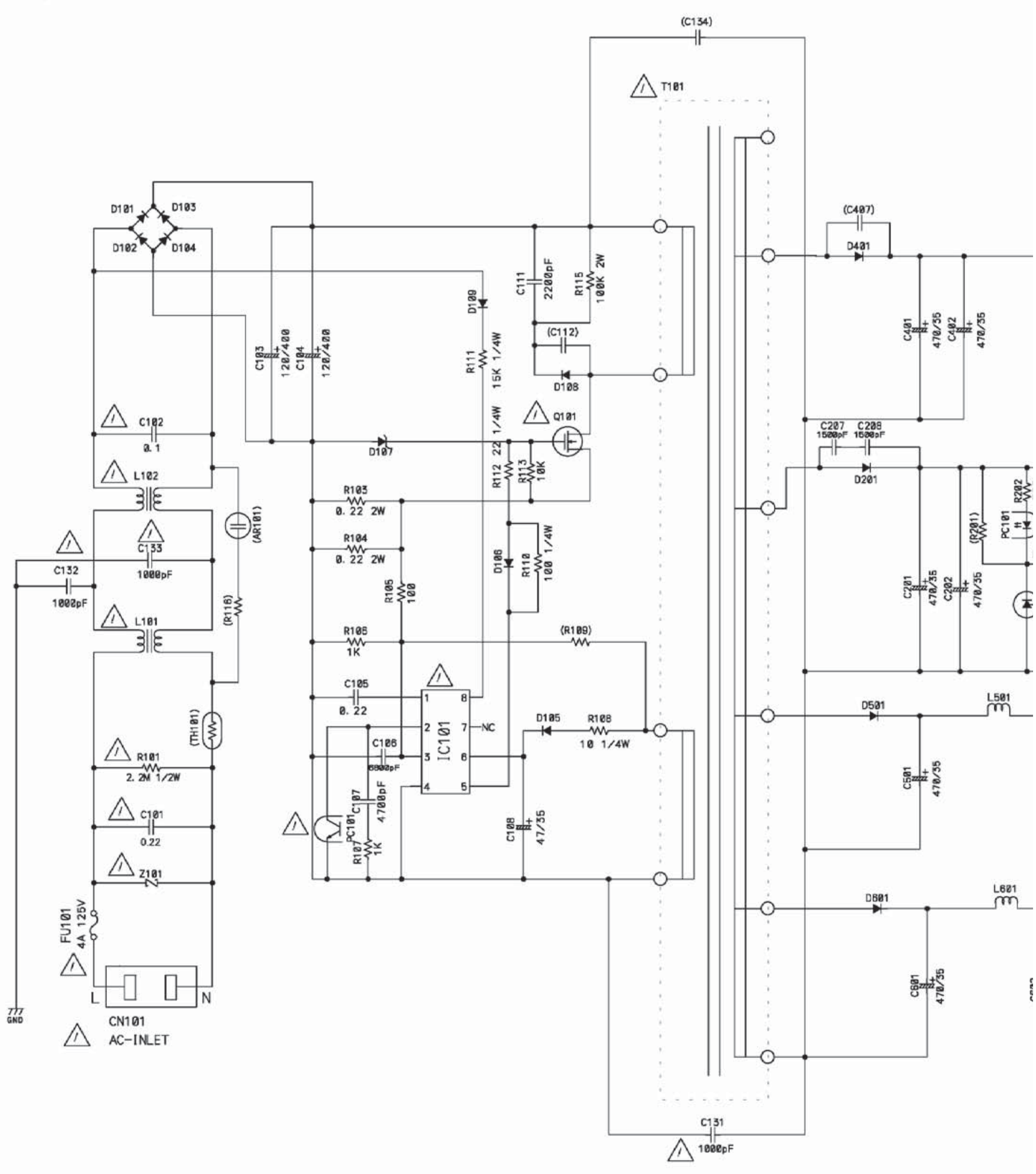
D

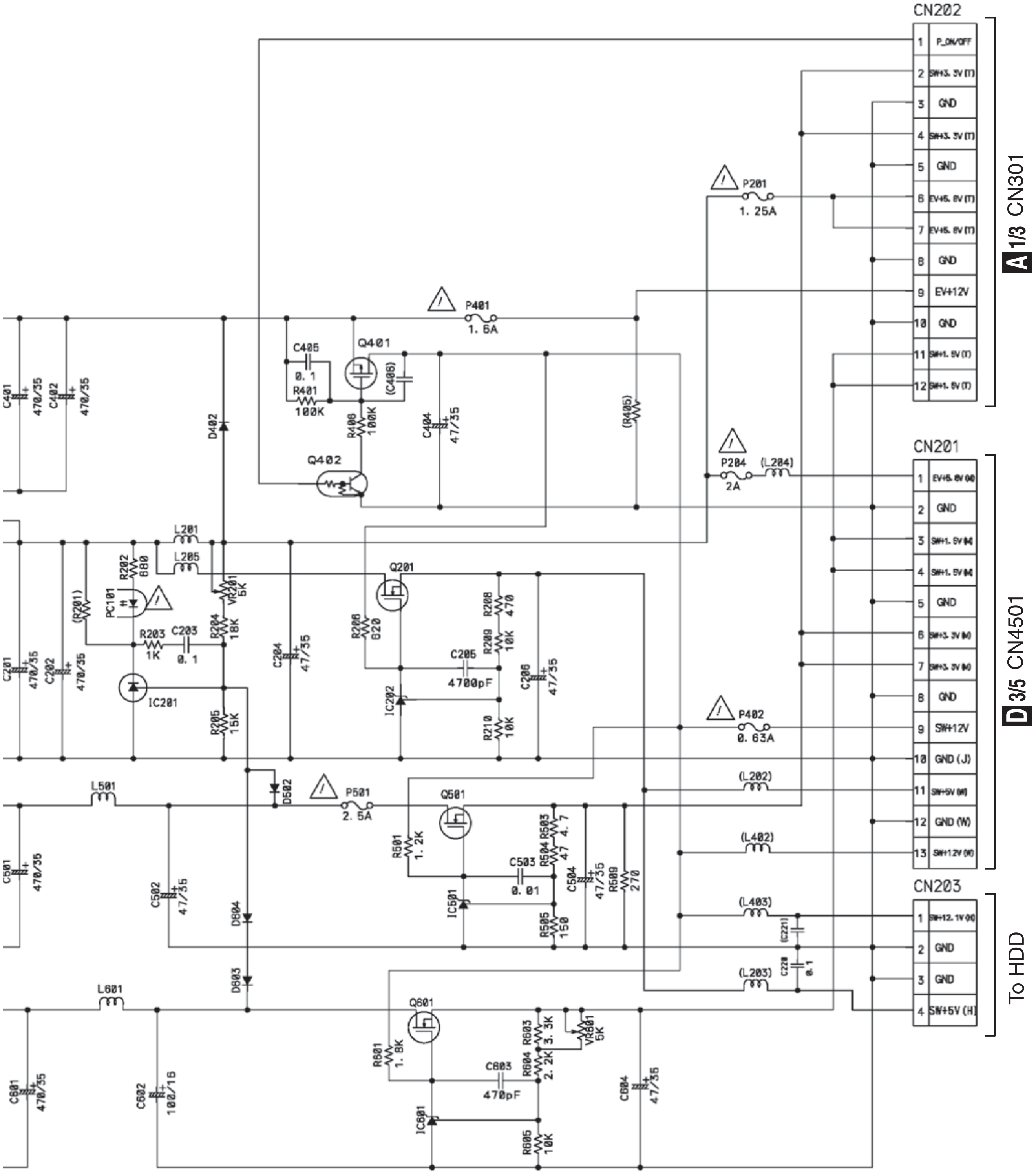
E

F

10.12 POWER SUPPLY ASSY

G POWER SUPPLY ASSY (VWR1408)


(C134)
T101
D101
D103
D102
D104
(C407)
D401
C111 2200pF
R115 100K 2W
D109
(C112)
C401 470/35
C402 470/35
C103 120/400
C104 120/400
R111 15K 1/4W
D108
C102 0.1
Q101
D107
C207 1500pF
C208 1500pF
D201
R112 22 1/4W
R113 10K
L102
R103 0.22 2W
(AR101)
R202
C133 1000pF
R104 0.22 2W
(R201)
PC101
C132 1000pF
D106
R110 100 1/4W
R105 100
C201 470/35
C202 470/35
(R116)
L101
R106 1K
(R109)
C105 0.22
IC101
D501
L501
(TH101)
NC
D105
R108 10 1/4W
C106 6800pF
R101 2.2M 1/2W
C501 470/35
C101 0.22
C107 4700pF
PC101
R107 1K
C108 47/35
Z101
D601
L601
FU101 4A 125V
C601 470/35
L
N
GND
CN101 AC-INLET
C131 1000pF


CN202
1 P_ON/OFF
2 SW+3.3V(T)
3 GND
4 SW+3.3V(T)
5 GND
6 EV+5.6V(T)
7 EV+5.6V(T)
8 GND
9 EV+12V
10 GND
11 SW+1.5V(T)
12 SW+1.5V(T)
A 1/3 CN301
CN201
1 EV+5.6V(M)
2 GND
3 SW+1.5V(M)
4 SW+1.5V(M)
5 GND
6 SW+3.3V(M)
7 SW+3.3V(M)
8 GND
9 SW+12V
10 GND (J)
11 SW+5V(W)
12 GND (W)
13 SW+12V(W)
D 3/5 CN4501
CN203
1 SW+12.1V(H)
2 GND
3 GND
4 SW+5V (H)
To HDD
P201 1.25A
P204 2A
(L204)
P401 1.6A
P402 0.63A
P501 2.5A
C401 470/35
C402 470/35
C405 0.1
R401 100K
Q401
(C406)
R406 100K
C404 47/35
(R405)
Q402
D402
L201
L205
R202 680
PC101
(R201)
VR201 5K
R203 1K
C203 0.1
R204 18K
C201 470/35
C202 470/35
IC201
R205 15K
C204 47/35
Q201
R206 620
R208 470
R209 10K
C205 4700pF
C206 47/35
IC202
R210 10K
L501
D502
Q501
R501 1.2K
R503 4.7
R504 47
C503 0.01
C504 47/35
R509 270
IC501
R505 150
C501 470/35
C502 47/35
D604
D603
(L202)
(L402)
(L403)
(C221)
C220 0.1
(L203)
L601
Q601
R601 1.8K
R603 3.3K
R604 2.2K
VR601 5K
C603 470pF
C604 47/35
IC601
R605 10K
C601 470/35
C602 100/16

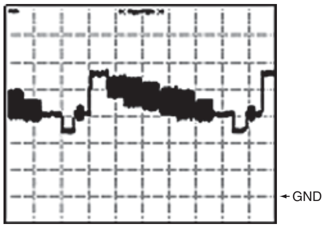
Unit		
Unit	Resistor	Ω/W (under 1/4W for no direction W)
	Capacitor	μF/V (under 50V for no direction V)

10.13 WAVEFORMS

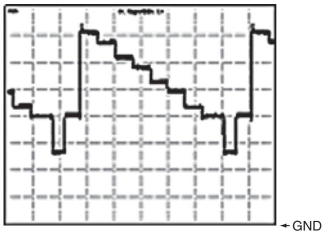
Note : The encircled numbers denote measuring point in the schematic diagram.

A SERVICE TUJB ASSY

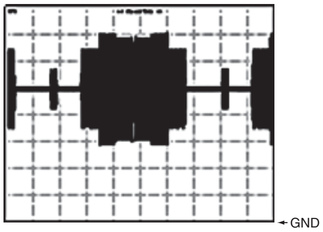
① **IC401-pin18 (TU-VIN)**
(Function : Tuner 9ch)
V:500mV/div. H:10µsec/div.



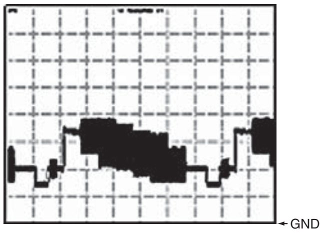
② **IC401-pin30 (Y1OUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



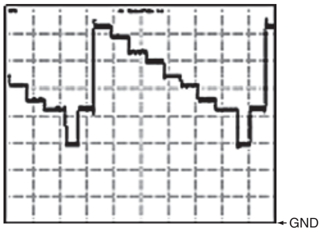
③ **IC401-pin28 (C1OUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



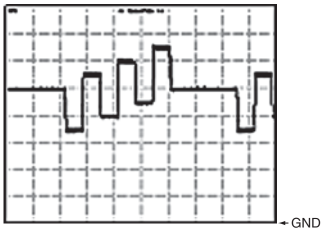
④ **C490+side (V2OUT)**
(Function : DVD play)
V:1V/div. H:10µsec/div.



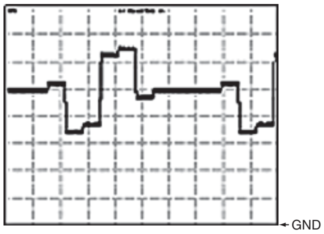
⑤ **C487+side (YOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



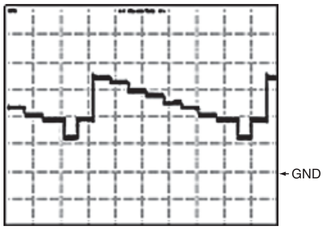
⑥ **C488+side (CbOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



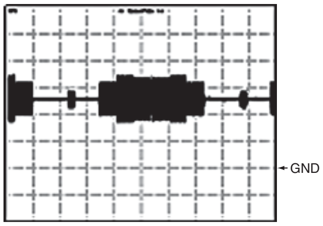
⑦ **C489+side (CrOUT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



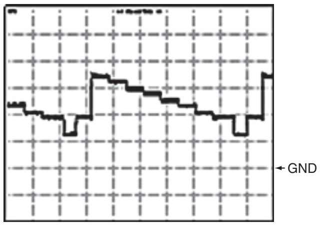
⑧ **CN101-pin8 (Y_OUT MtoT)**
(Function : Tuner 9ch)
V:500mV/div. H:10µsec/div.



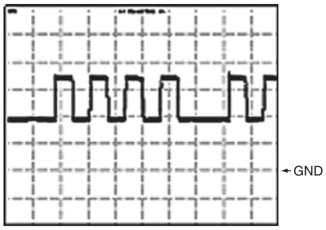
⑨ **CN101-pin10 (C_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



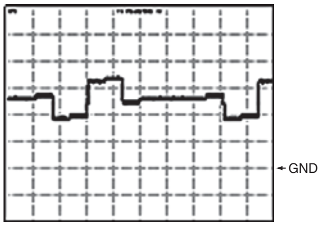
⑩ **CN101-pin2 (Yp_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



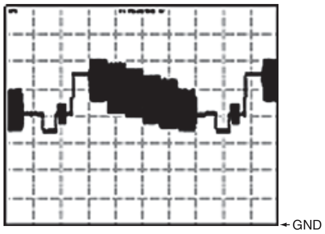
⑪ **CN101-pin6 (Cb_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



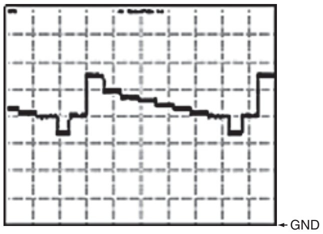
⑫ **CN101-pin4 (Cr_OUT MtoT)**
(Function : DVD play)
V:500mV/div. H:10µsec/div.



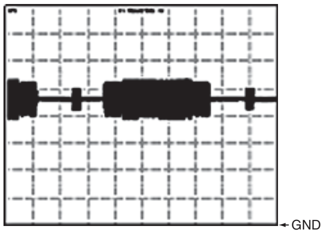
⑬ **IC401-pin14 (2VIN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



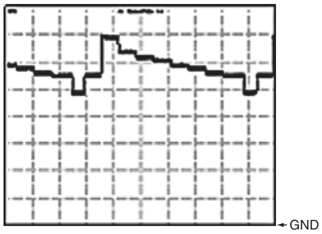
⑭ **IC401-pin7 (Y2IN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



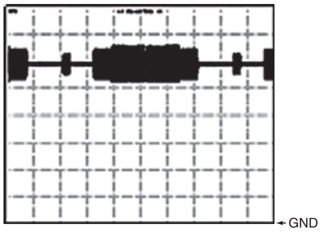
⑮ **IC401-pin9 (C2IN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



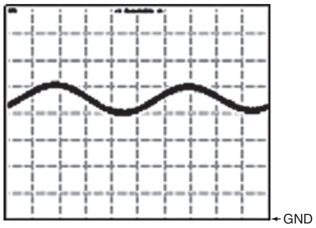
⑯ **CN101-pin12 (Y_IN TtoM)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



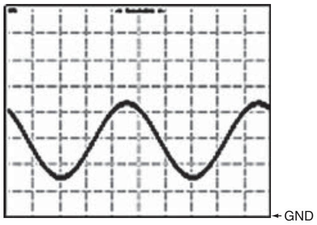
⑰ **CN101-pin14 (C_IN TtoM)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



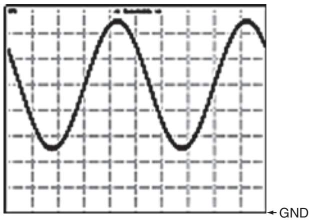
⑱ **IC401-pin87 (TU-LIN)**
(Function : Tuner 9ch)
V:500mV/div. H:10µsec/div.



⑲ **C491+side (L_OUT)**
Function : DVD play)
V:500mV/div. H:10µsec/div.



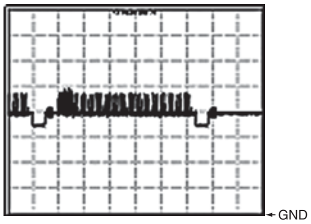
⑳ **CN101-pin26 (L_IN)**
(Function : LINE2 IN)
V:500mV/div. H:10µsec/div.



A SERVICE TUJB ASSY

Measurement Condition :

㉑ **IC101-pin81 (TEXTV)**
(Function : RF IN)
V:1V/div. H:10μsec/div.

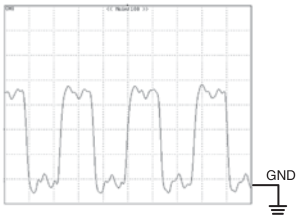


D SERVICE MAIN ASSY

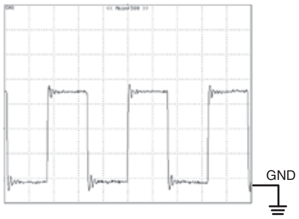
Measurement Condition :

No.1 - 8 : EBU Color Bar (100 / 0 / 75 / 0)

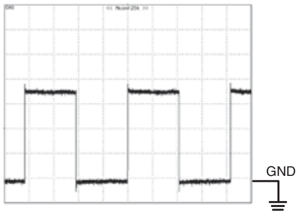
① **IC3201 Pin16 (DACMCK)**
V: 1V/div. H: 20ns/div.



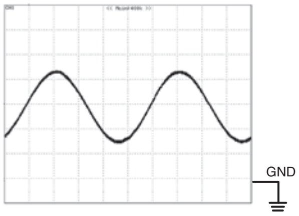
② **IC3201 Pin1 (DACBCK)**
V: 1V/div. H: 100ns/div.



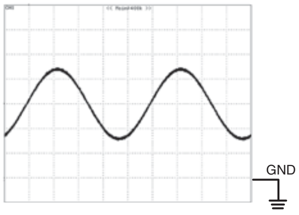
③ **IC3201 Pin3 (DACLRCK)**
V: 1V/div. H: 5us/div.



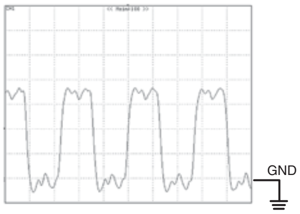
④ **CN2301 Pin21 (LCHOUT)**
V: 2V/div. H: 200us/div.



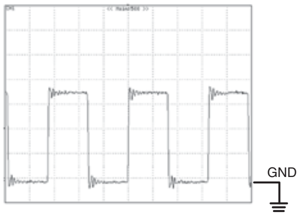
⑤ **CN2301 Pin19 (RCHOUT)**
V: 2V/div. H: 200us/div.



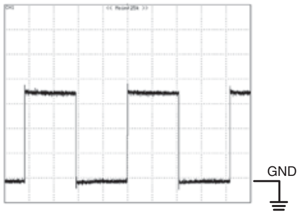
⑥ **IC3101 Pin11 (ADCCLK0)**
V: 1V/div. H: 20ns/div.



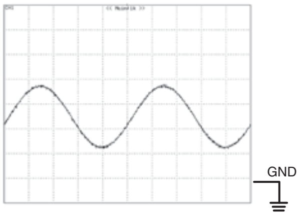
⑦ **IC3101 Pin12 (AD_BCK)**
V: 1V/div. H: 100ns/div.



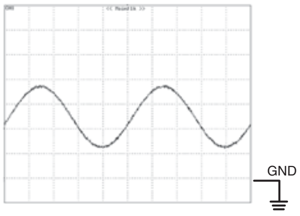
⑧ **IC3101 Pin10 (AD_LRCK)**
V: 1V/div. H: 5us/div.



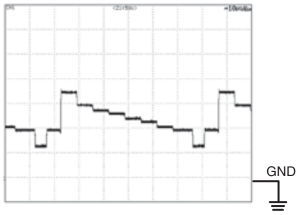
⑨ **CN2301 Pin15 (LCHIN)**
V: 1V/div. H: 200us/div.



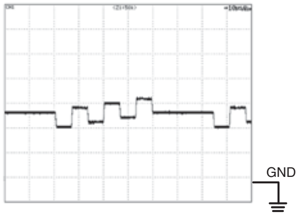
⑩ **CN2301 Pin17 (RCHIN)**
V: 1V/div. H: 200us/div.



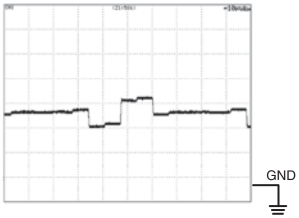
⑪ **CN2301 Pin39 (YP)**
V: 0.5V/div. H: 10us/div.



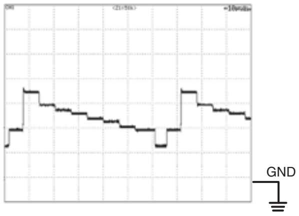
⑫ **CN2301 Pin35 (CB)**
V: 0.5V/div. H: 10us/div.



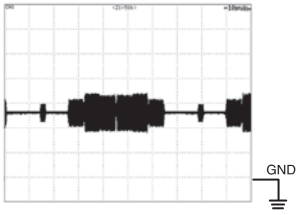
⑬ **CN2301 Pin37 (CR)**
V: 0.5V/div. H: 10us/div.



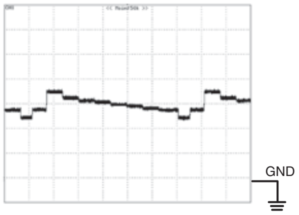
⑭ **CN2301 Pin33 (Y)**
V: 0.5V/div. H: 10us/div.



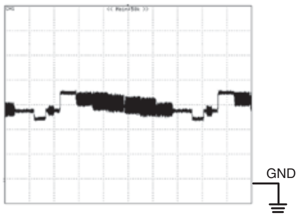
⑮ **CN2301 Pin31 (C)**
V: 0.5V/div. H: 10us/div.



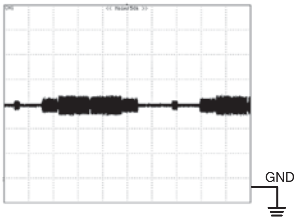
⑯ **CN2301 Pin29 (S_Y)**
V: 1V/div. H: 10us/div.



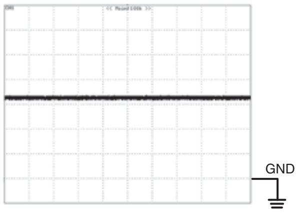
⑯ **CN2301 Pin29 (CVBS)**
V: 1V/div. H: 10us/div.



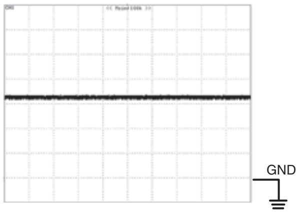
⑰ **CN2301 Pin27 (S_C)**
V: 1V/div. H: 10us/div.



⑱ **IC501 Pin34 (XDMUTE1)**
V: 1V/div. H: 20us/div.

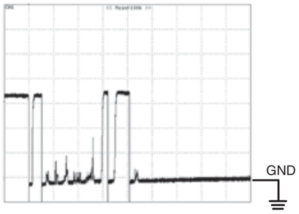


⑲ **IC501 Pin35 (XDMUTE2)**
V: 1V/div. H: 20us/div.

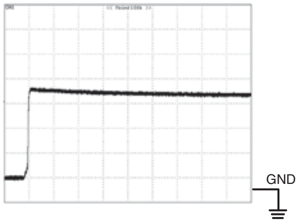


D SERVICE MAIN ASSY

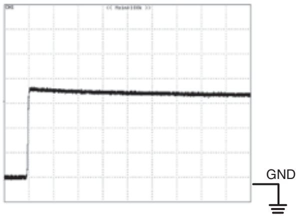
⑳ **CN601 Pin3 (CLOSE)**
open → close
V: 1V/div. H: 20us/div.



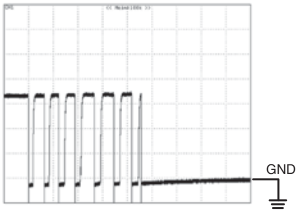
⑳ **CN601 Pin3 (CLOSE)**
close → open
V: 1V/div. H: 20us/div.



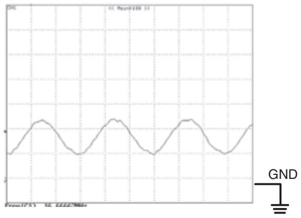
㉑ **CN601 Pin5 (OPEN)**
open → close
V: 1V/div. H: 20us/div.



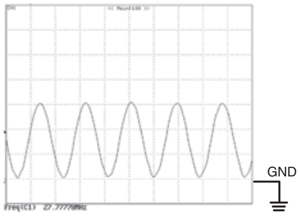
㉑ **CN601 Pin5 (OPEN)**
close → open
V: 1V/div. H: 20us/div.



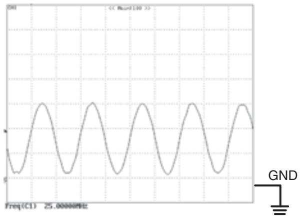
㉒ **X101 (16.66667 MHz)**
V: 1V/div. H: 20ns/div.



㉓ **X1002 (27.77778 MHz)**
V: 1V/div. H: 20ns/div.



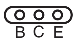
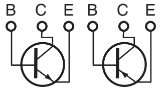
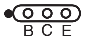
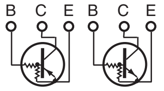
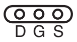
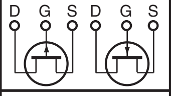
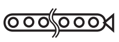
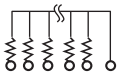
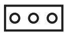
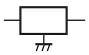
㉔ **X1001 (25 MHz)**
V: 1V/div. H: 20ns/div.



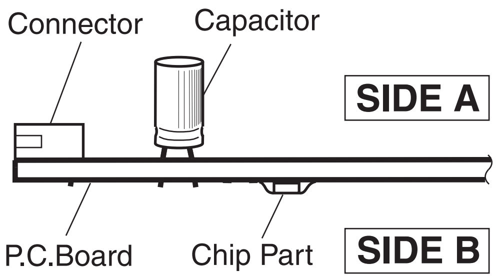
11. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

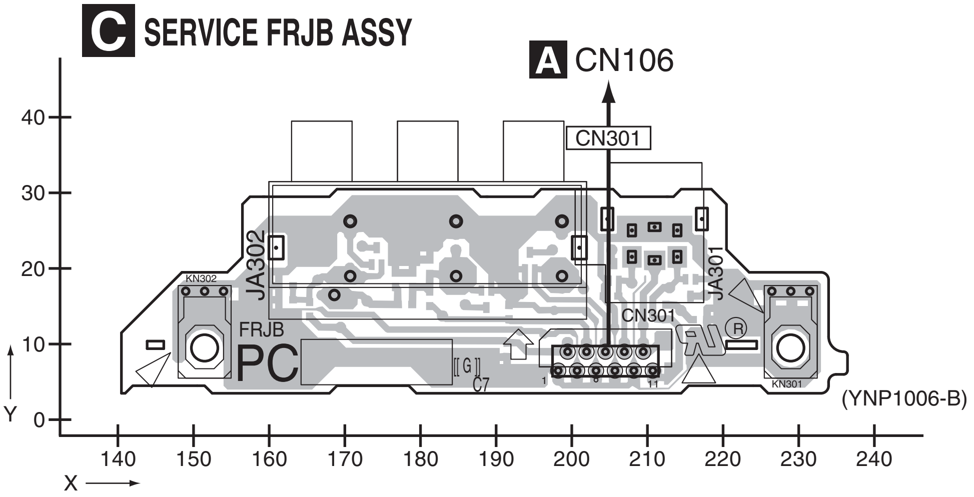
Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

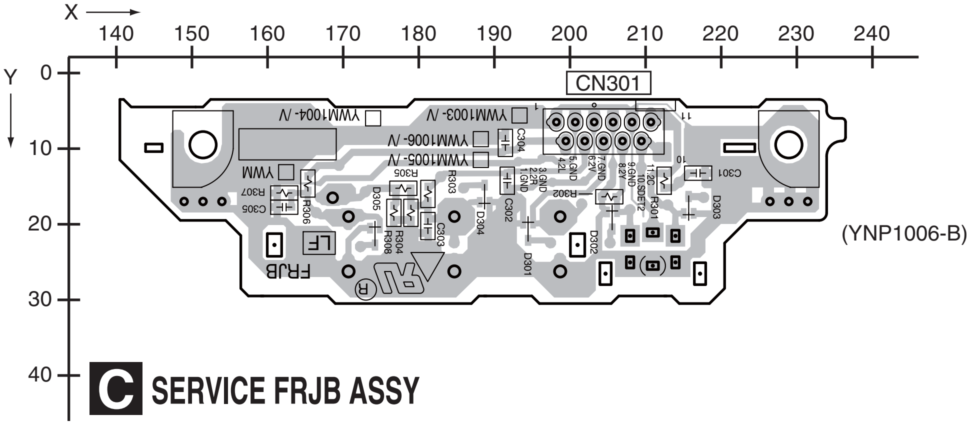

Connector
Capacitor
SIDE A
P.C.Board
Chip Part
SIDE B

11.1 SERVICE FRJB ASSY

SIDE A **SIDE A**

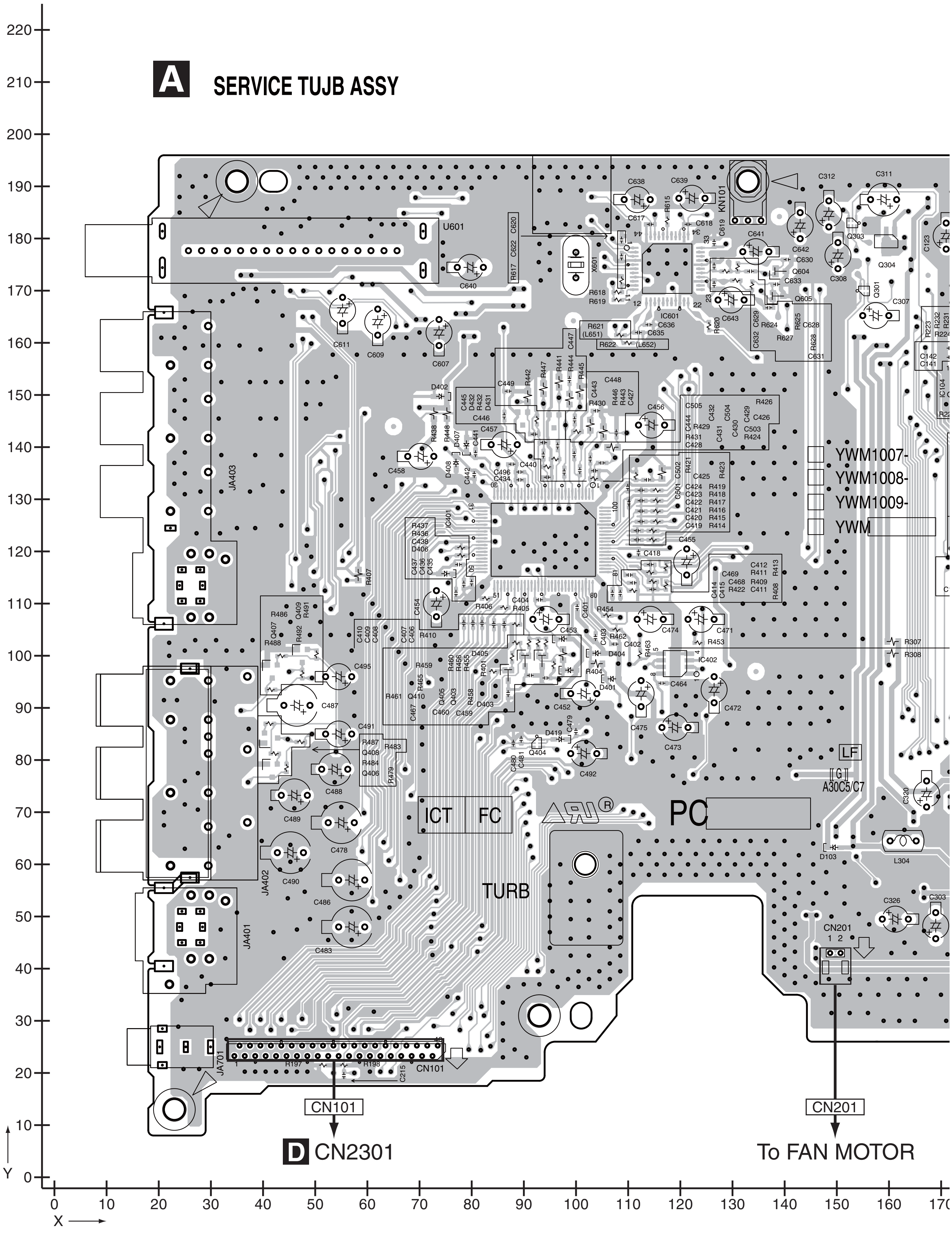

C SERVICE FRJB ASSY
A CN106
CN301
JA302
JA301
KN302
KN301
FRJB
PC
C7
1
11
(YNP1006-B)
40
30
20
10
0
Y
140
150
160
170
180
190
200
210
220
230
240
X

SIDE B **SIDE B**

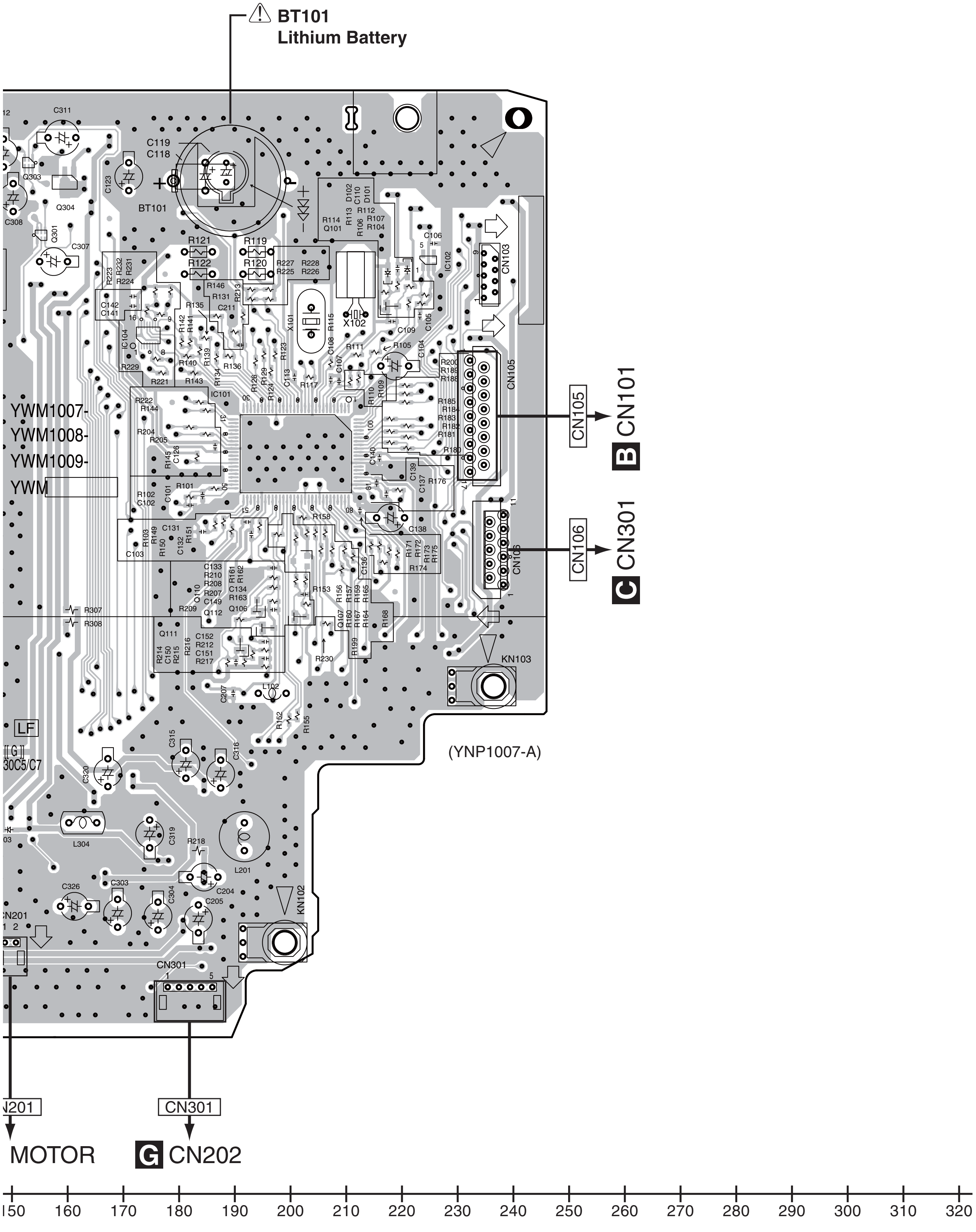

X
140
150
160
170
180
190
200
210
220
230
240
Y
0
10
20
30
40
CN301
YWM1004-/V
YWM1003-/V
YWM1006-/V
YWM1005-/V
YWM
C304
C301
C302
C303
C305
R301
R302
R303
R304
R305
R306
R307
R308
D301
D302
D303
D304
D305
LF
FRJB
(YNP1006-B)
C SERVICE FRJB ASSY

11.2 SERVICE TUJB ASSY

SIDE A


A SERVICE TUJB ASSY
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Y
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170
X
U601
KN101
X601
IC601
IC401
IC402
JA403
JA402
JA401
JA701
CN101
CN201
1 2
YWM1007-
YWM1008-
YWM1009-
YWM
LF
[[G]]
A30C5/C7
ICT
FC
PC
TURB
D103
L304
CN101
D CN2301
CN201
To FAN MOTOR

SIDE A


BT101
Lithium Battery
CN105
B CN101
CN106
C CN301
YWM1007-
YWM1008-
YWM1009-
YWM
LF
(YNP1007-A)
IC101
IC102
IC104
X101
X102
KN102
KN103
CN103
CN105
CN106
CN201
CN301
L102
L201
L304
C311
C119
C118
C123
Q303
Q304
Q301
C308
C307
BT101
R121
R122
R119
R120
R227
R228
R225
R226
R146
R131
R213
C211
R135
D102
C110
D101
R113
R112
R114
Q101
R106
R107
R104
C106
R105
C109
C105
C104
R200
R189
R188
R185
R184
R183
R182
R181
R180
R176
C139
C137
C140
R110
R109
R111
C108
R115
C107
R117
C13
R123
R126
R129
R124
R136
R134
R139
R140
R143
R142
R141
R223
R232
R231
R224
C142
C141
R229
R221
R222
R144
R204
R205
R145
C126
R101
R102
C102
C101
R103
R149
R150
C131
R151
C132
C103
R158
C138
R171
R172
R173
R175
R174
C136
C133
R210
R208
R207
C149
R161
R162
C134
R163
Q106
Q110
R209
Q112
R153
R156
R157
R159
R165
Q107
R160
R167
R164
R168
R199
Q111
C152
R212
C151
R217
R214
C150
R215
R216
R230
C207
R152
R155
R307
R308
[[G]]
30C5/C7
C320
C315
C316
C319
R218
C204
C205
C326
C303
C304
CN201
1 2
CN301
1 5
CN201
CN301
MOTOR
G CN202
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320

SIDE B

A

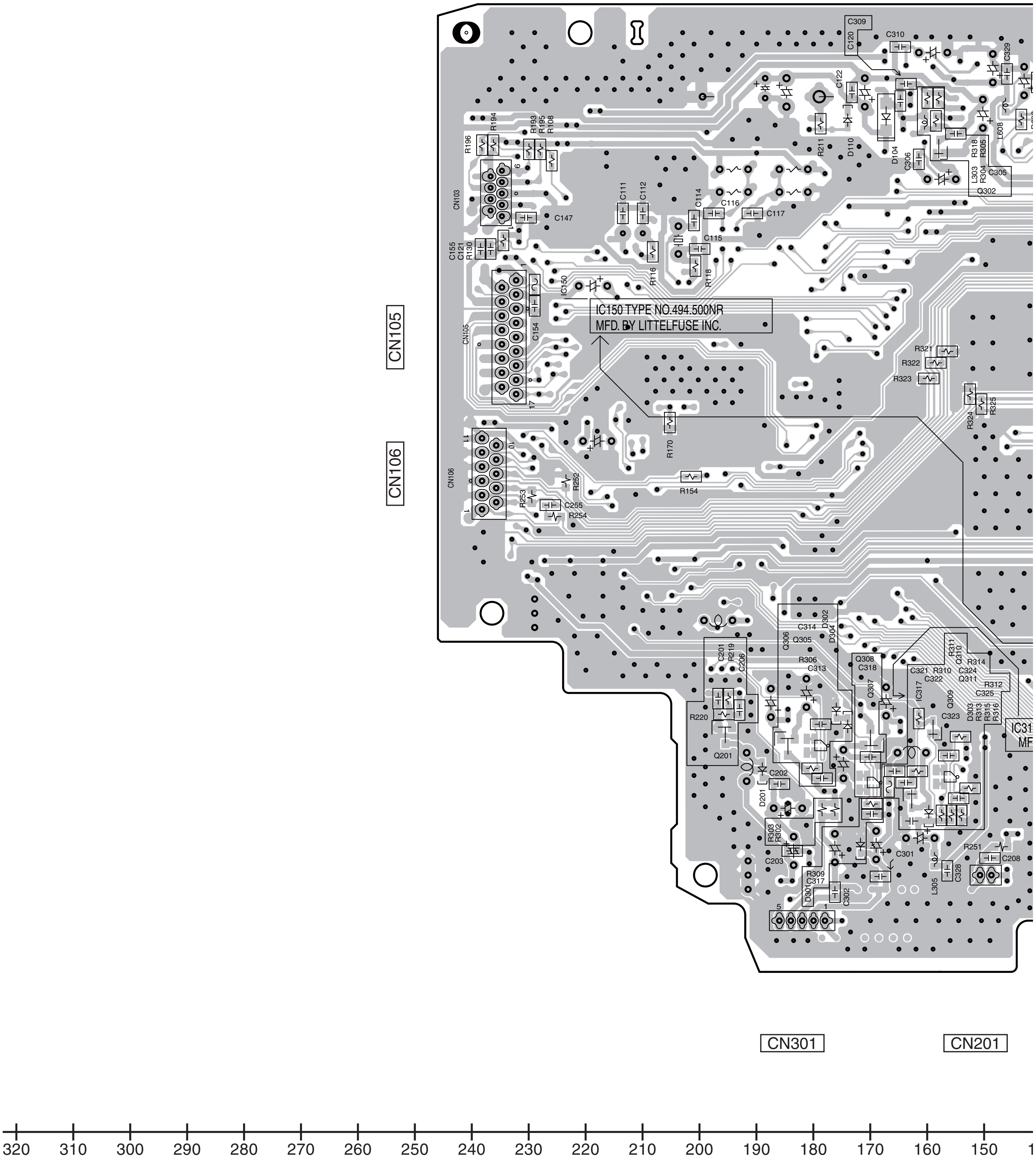
A SERVICE TUJB ASSY

B

C

D

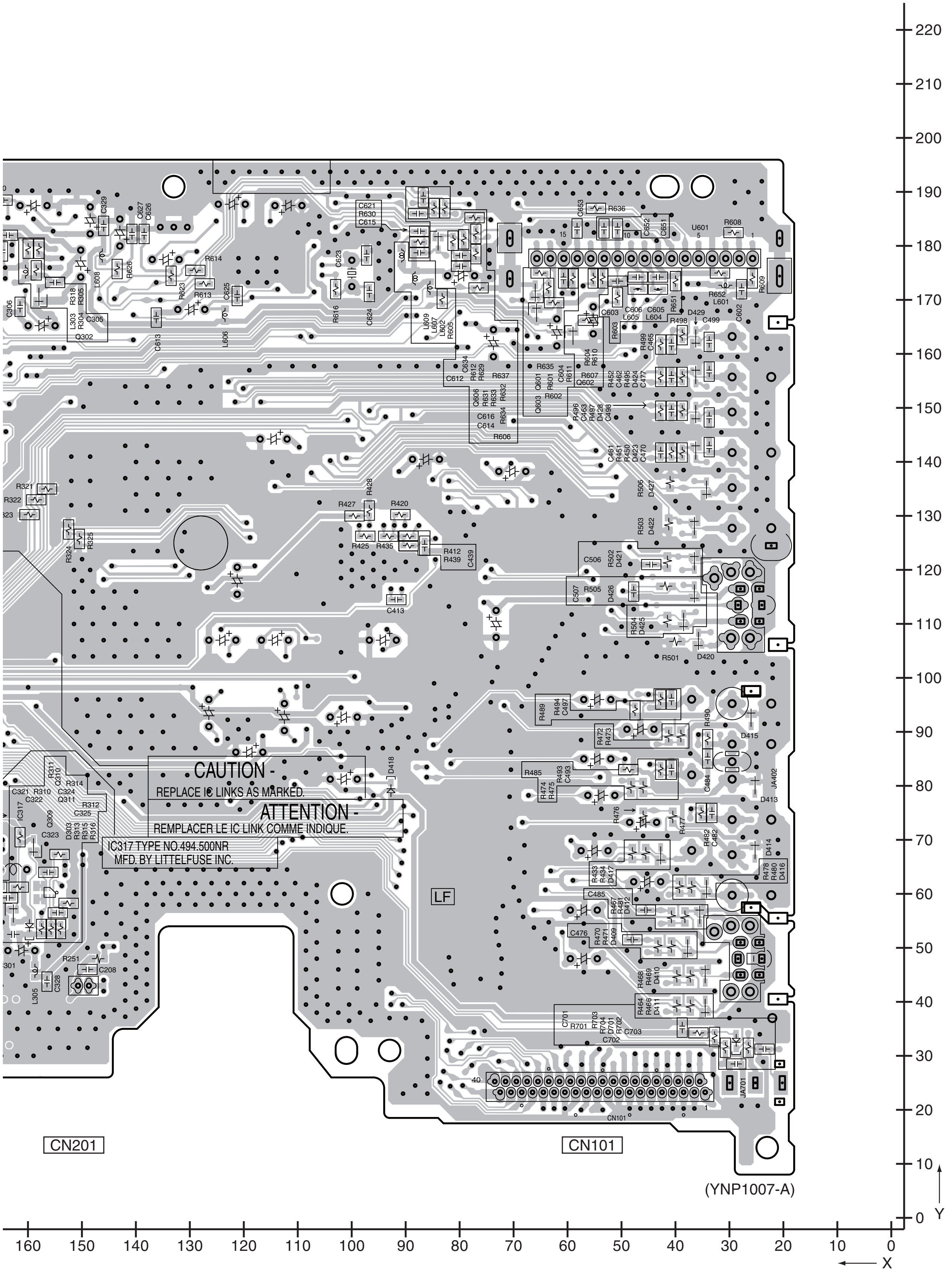
E


C309
C310
C120
C329
C122
R211
D110
D104
C306
R318
R305
L608
L303
R304
C305
Q302
R196
R194
R193
R195
R108
CN103
C147
C111
C112
C114
C116
C117
C115
R116
R118
C155
C121
R130
IC150
C150
C154
CN105
IC150 TYPE NO.494.500NR
MFD. BY LITTELFUSE INC.
R321
R322
R323
R324
R325
CN105
CN106
CN106
R170
R252
R253
C255
R254
R154
C201
R219
C206
R220
Q201
C314
D302
D304
Q306
Q305
R306
C313
Q308
C318
Q307
R311
Q310
R314
C321
R310
C324
C322
Q311
R312
C325
C317
Q309
C323
D303
R313
R315
R316
IC31
MF
D201
C202
R303
R302
C203
R309
C317
D301
C302
C301
L305
C328
R251
C208
5
1
CN301
CN201
320
310
300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
1

F

A

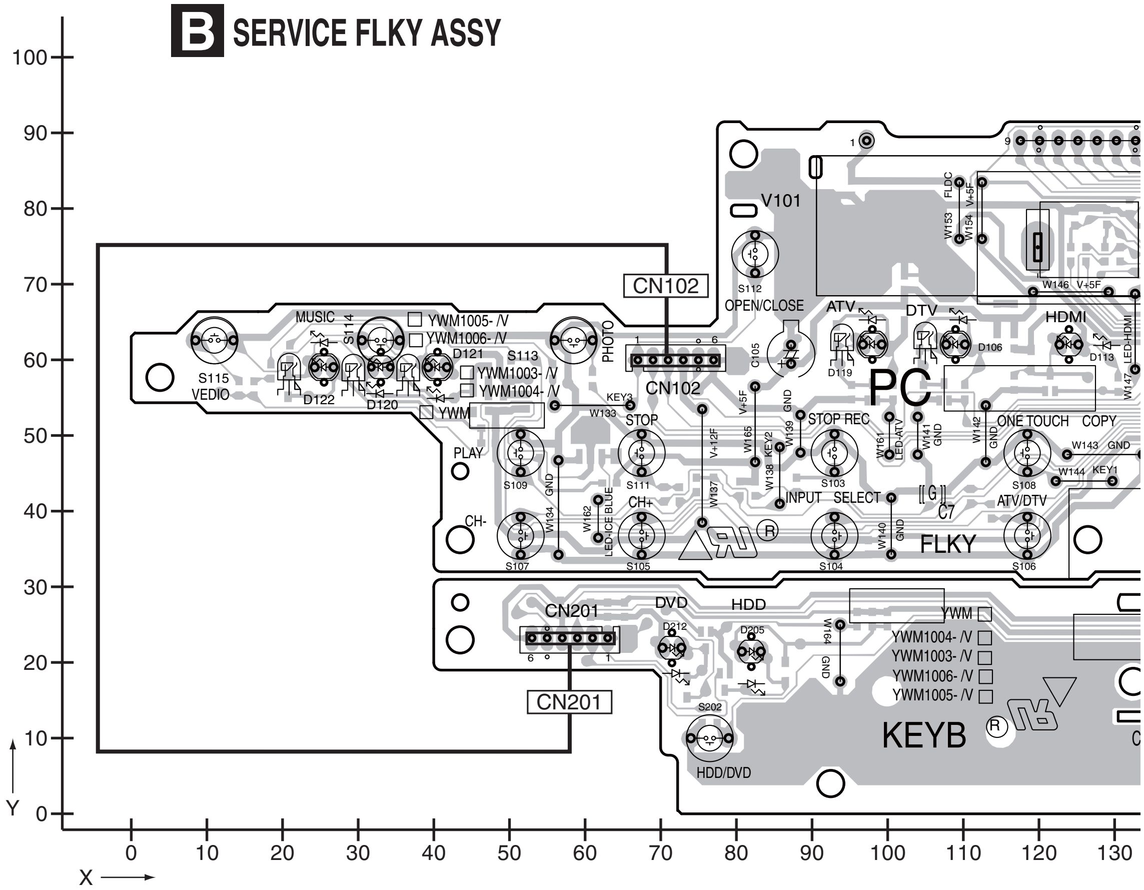
SIDE B


CAUTION -
REPLACE IC LINKS AS MARKED.
ATTENTION -
REMPLACER LE IC LINK COMME INDIQUE.
IC317 TYPE NO.494.500NR
MFD. BY LITTELFUSE INC.
LF
CN201
CN101
JA701
JA402
U601
(YNP1007-A)
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Y
160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
X

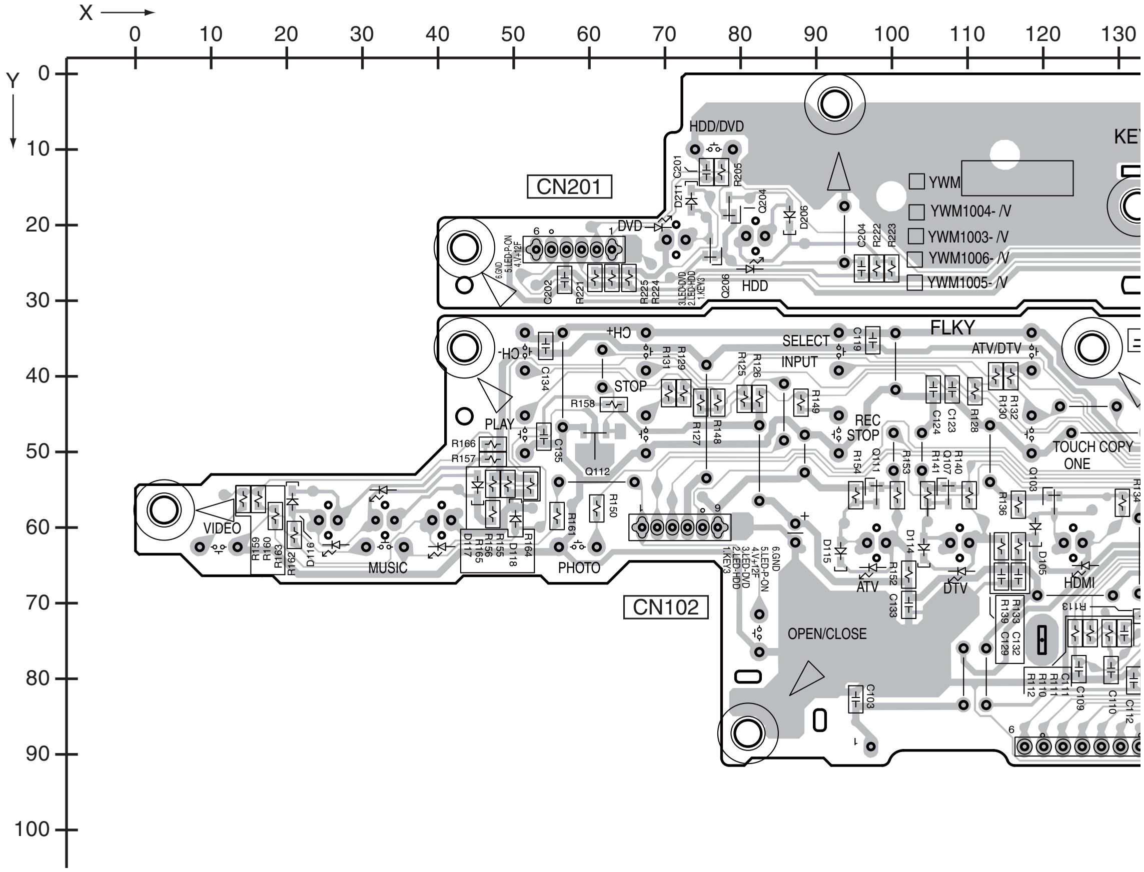
A

11.3 SERVICE FLKY ASSY

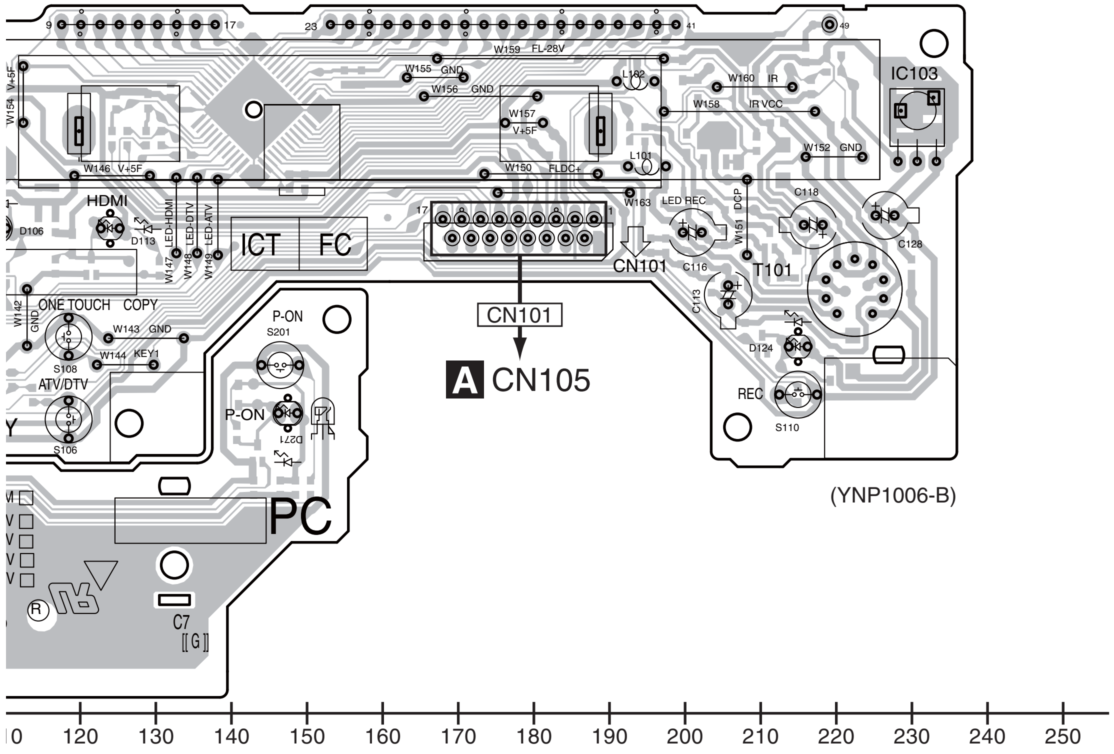
SIDE A


B SERVICE FLKY ASSY
100
90
80
70
60
50
40
30
20
10
0
Y
X
0 10 20 30 40 50 60 70 80 90 100 110 120 130
CN102
CN201
V101
S112
OPEN/CLOSE
ATV
DTV
HDMI
D106
D113
D119
PC
MUSIC
S114
YWM1005- /V
YWM1006- /V
D121
S113
YWM1003- /V
YWM1004- /V
YWM
PHOTO
S115
VEDIO
D122
D120
KEY3
W133
STOP
STOP REC
ONE TOUCH
COPY
PLAY
S109
S111
S103
S108
INPUT
SELECT
ATV/DTV
CH+
CH-
S107
S105
S104
S106
FLKY
C7
W134
W162
LED-BLUE
W137
V+12F
W165
V+5F
W138
KEY2
W139
GND
W161
LED-ATV
W141
W142
W143
W144
KEY1
W140
W146
V+5F
W147
W153
W154
FLDC
C105
DVD
HDD
D212
D205
W164
GND
YWM
YWM1004- /V
YWM1003- /V
YWM1006- /V
YWM1005- /V
S202
KEYB
HDD/DVD

SIDE B

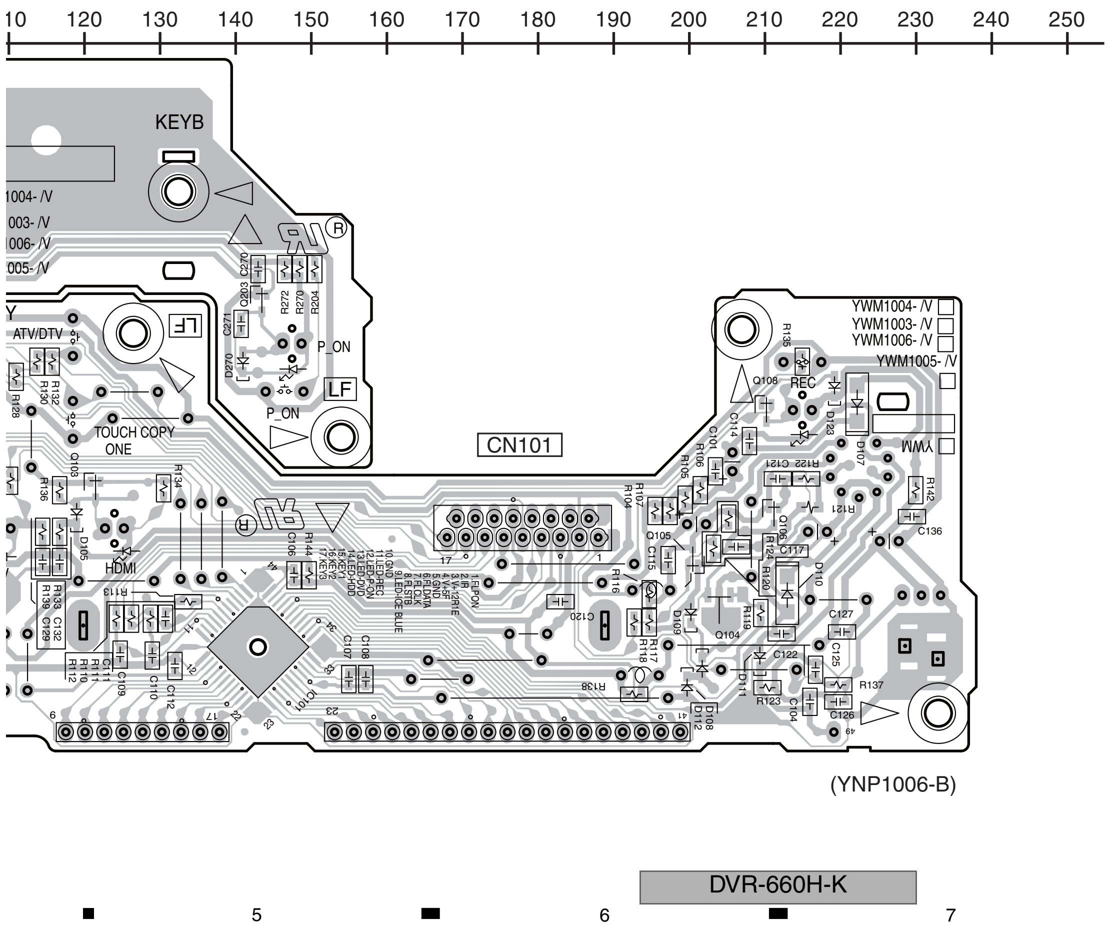

X
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Y
0
10
20
30
40
50
60
70
80
90
100
HDD/DVD
C201
R205
D211
Q204
D206
DVD
HDD
CN201
C202
R221
R225
R224
Q206
C204
R222
R223
YWM
YWM1004- /V
YWM1003- /V
YWM1006- /V
YWM1005- /V
FLKY
CH+
CH-
SELECT
INPUT
ATV/DTV
C119
C134
R131
R129
R125
R126
R158
STOP
R127
R148
R149
REC
STOP
C124
C123
R128
R130
R132
TOUCH COPY
ONE
PLAY
R166
R157
C135
Q112
R150
R161
R154
Q111
R153
R141
Q107
R140
Q103
R136
VIDEO
R159
R160
R163
R162
D116
MUSIC
D117
R165
R156
R155
D118
R164
PHOTO
D115
D114
ATV
R152
C133
DTV
D105
HDMI
R139
R133
C129
C132
R113
R112
R110
R111
C109
C110
C112
CN102
OPEN/CLOSE
C103
KEY

SIDE A


IC103
W159 FL-28V
W155 GND
W156 GND
W157 V+5F
W160 IR
W158 IR VCC
W152 GND
W154 V+5F
W146 V+5F
W150 FLDC+
W163
L102
L101
HDMI
D106
D113
LED-HDMI
LED-DTV
LED-ATV
W147
W148
W149
ICT
FC
CN101
LED REC
W151 DCP
C118
C128
C116
T101
C113
D124
REC
S110
ONE TOUCH COPY
W142 GND
W143 GND
W144 KEY1
S108
ATV/DTV
S106
P-ON
S201
D271
PC
C7
[[G]]
CN101
A CN105
120 130 140 150 160 170 180 190 200 210 220 230 240 250

(YNP1006-B)

SIDE B


120 130 140 150 160 170 180 190 200 210 220 230 240 250
KEYB
1004- /V
003- /V
006- /V
005- /V
LF
P_ON
ATV/DTV
TOUCH COPY
ONE
HDMI
CN101
YWM1004- /V
YWM1003- /V
YWM1006- /V
YWM1005- /V
REC
Q106
D123
D107
R135
C114
C101
R105
R106
R107
R104
Q105
C115
R116
C120
R117
R118
D109
Q104
R119
R120
R124
C117
Q108
D110
C127
C125
C122
D111
R123
C104
R137
C126
C136
R142
R121
R122 C121
R138
D108
D112
IC101
C106
R144
C107
C108
R113
R133
R139
C132
C129
R112
R110
C111
C109
C110
C112
D105
R136
Q103
R134
R128
R130
R132
D270
C271
Q203
C270
R272
R270
R204
1.FLPON
2.IR
3.V+12RE
4.V+5F
5.GND
6.FLDATA
7.FLCLK
8.FLSTB
9.LED ICE BLUE
10.GND
11.LED-REC
12.LED-PON
13.LED-DVD
14.LED-HDD
15.KEY1
16.KEY2
17.KEY3

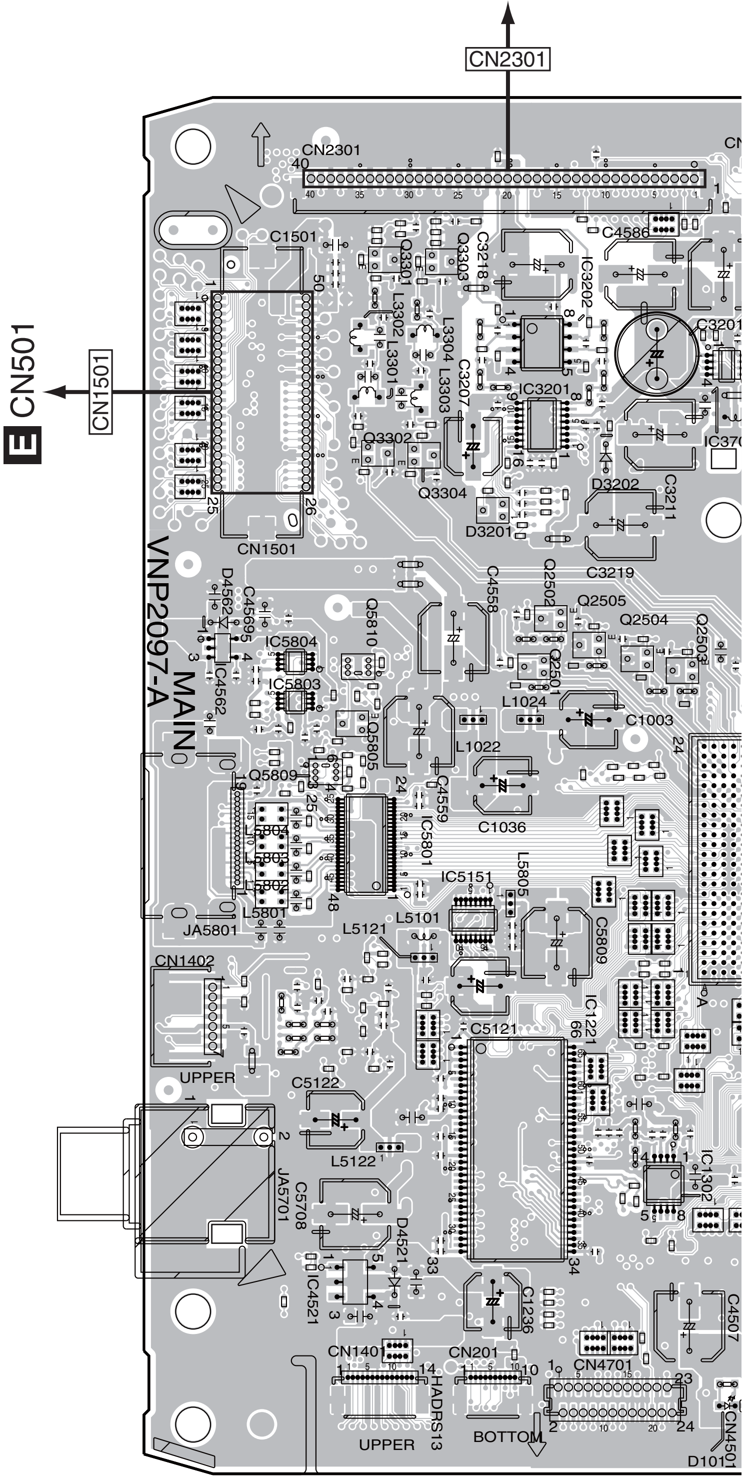
(YNP1006-B)

11.4 SERVICE MAIN ASSY

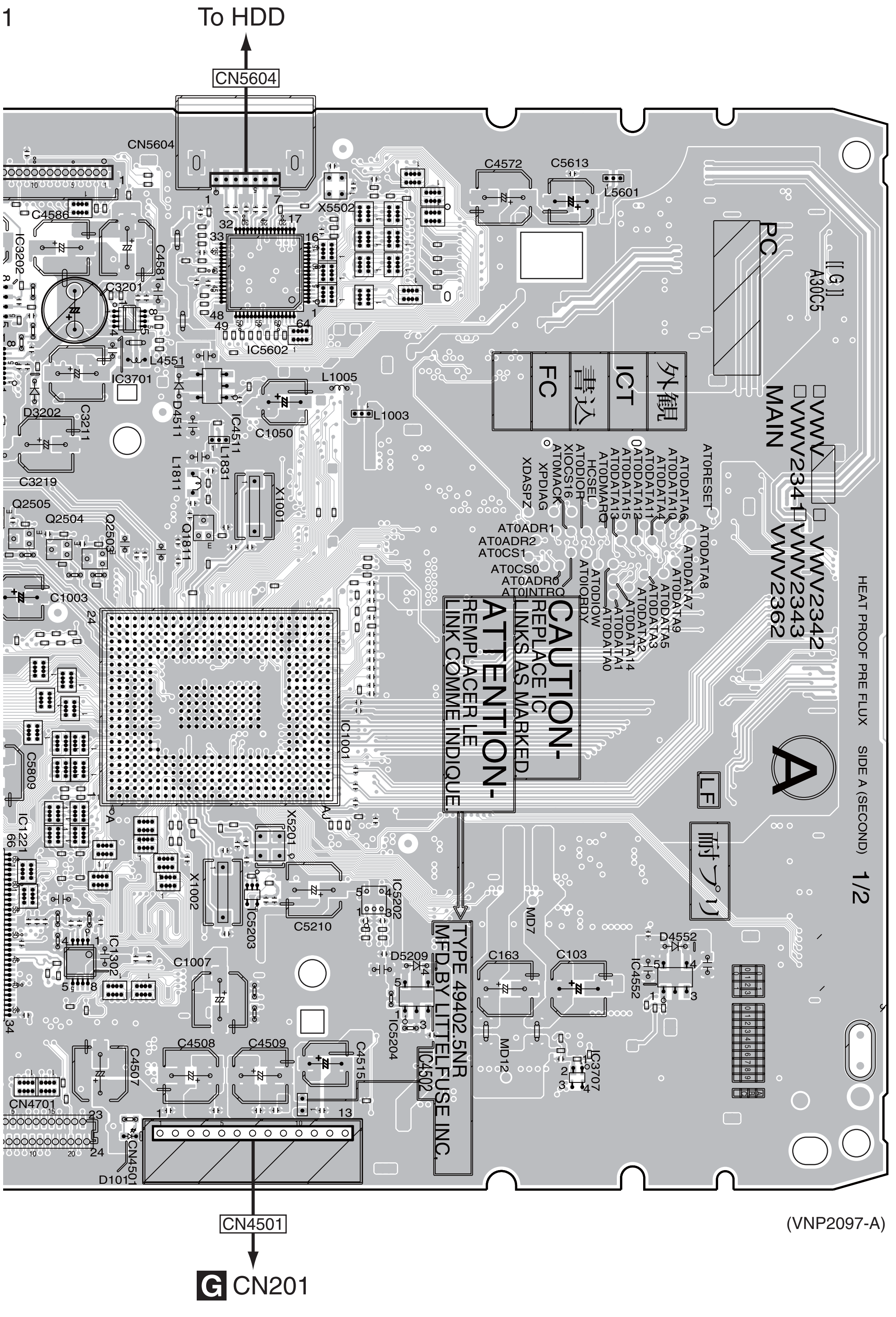
SIDE A

D SERVICE MAIN ASSY

	IC	Q	
		Q3301	Q3303
	IC3202		
IC3201	IC5602		
	IC3701	Q3302	
		Q3304	
	IC4511		
		Q2502	
		Q2505	
		Q2504	Q5810
	IC5804		
		Q1811	Q2503
		Q2501	
IC4562	IC5803		
		Q5805	
		Q5809	
	IC5801		
	IC5151		
	IC1001		
	IC1221		
IC5202			
	IC5203		
	IC1302		
	IC4552		
	IC5204		
	IC4521		
IC3707	IC4502		


A CN101
CN2301
E CN501
CN1501
VNP2097-A
MAIN
CN2301
C1501
Q3301
Q3303
C3218
IC3202
C4586
L3302
L3301
L3304
L3303
C3207
IC3201
C3201
Q3302
Q3304
D3202
C3211
D3201
CN1501
C3219
D4562
C45695
C4558
Q2502
Q2505
Q2504
Q5810
IC5804
IC5803
C4562
L1024
C1003
Q5805
L1022
Q5809
C4559
C1036
IC5801
IC5151
L5805
L5801
JA5801
L5121
L5101
C5809
CN1402
C5121
IC1221
UPPER
C5122
L5122
JA5701
C5708
D4521
IC4521
IC1302
C1236
C4507
CN1401
CN201
CN4701
HADRS13
UPPER
BOTTOM
CN4501
D101

SIDE A

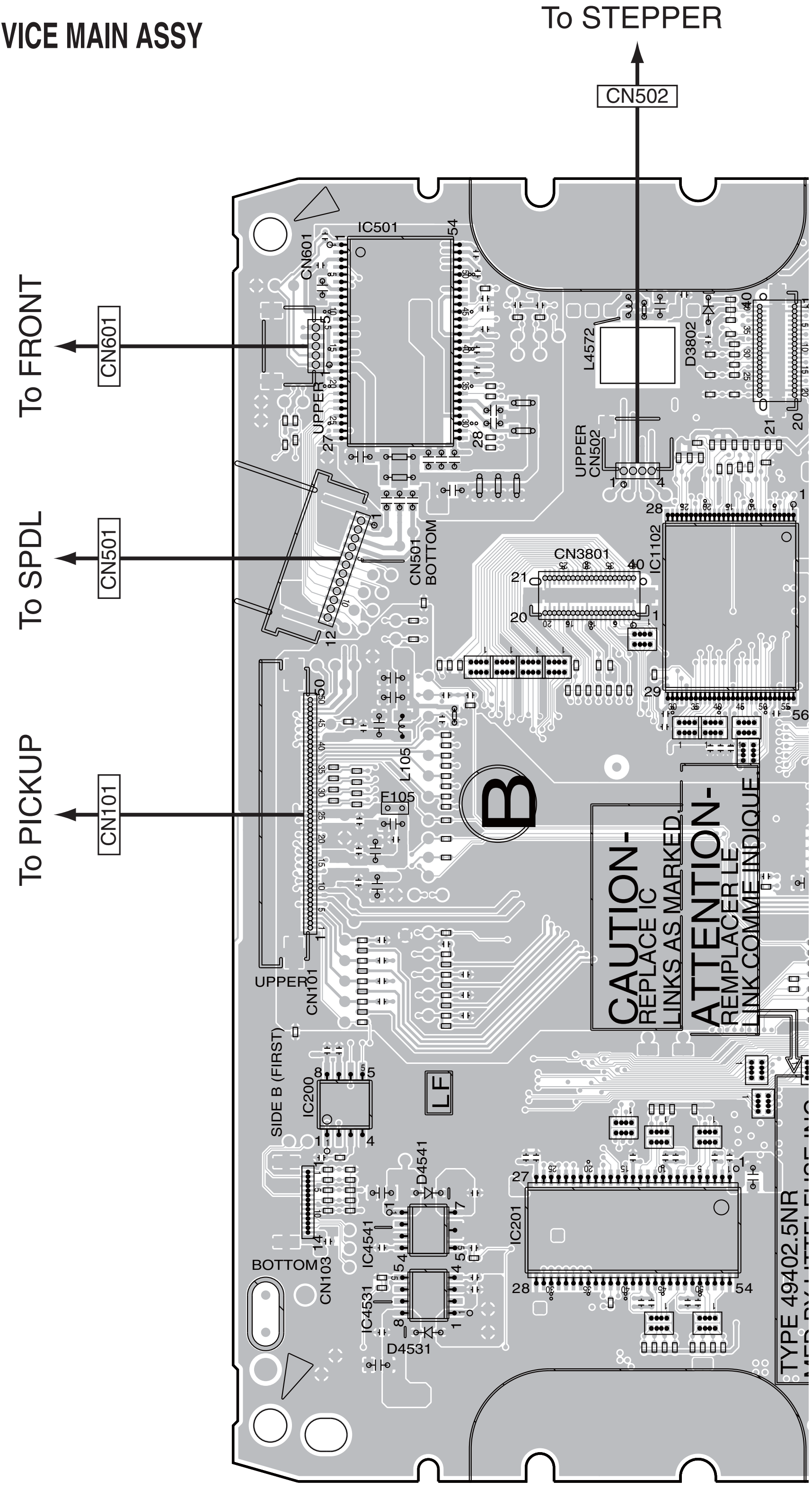

1
To HDD
CN5604
CN5604
1
7
X5502
32
33
17
16
48
49
64
1
IC5602
C4572
C5613
L5601
C4586
IC3202
C4581
C3201
L4551
IC3701
D3202
C3211
D4511
IC4511
L1831
L1811
Q1811
C1050
L1005
L1003
X1001
C3219
Q2505
Q2504
Q2503
C1003
24
PC
[[G]]
A30C5
外観
ICT
書込
FC
MAIN
VWV2342
VWV2341
VWV2343
VWV2362
AT0RESET
AT0DATA6
AT0DATA10
AT0DATA4
AT0DATA11
AT0DATA12
AT0DATA13
AT0DATA15
AT0DMARQ
HCSEL
AT0DIOR
XIOCS16
AT0MACK
XPDIAG
XDASPZ
AT0ADR1
AT0ADR2
AT0CS1
AT0CS0
AT0ADR0
AT0INTRQ
AT0IORDY
AT0DIOW
AT0DATA0
AT0DATA1
AT0DATA14
AT0DATA2
AT0DATA3
AT0DATA5
AT0DATA9
AT0DATA7
AT0DATA8
CAUTION-
REPLACE IC
LINKS AS MARKED.
ATTENTION-
REMPLACER LE
LINK COMME INDIQUE
IC1001
HEAT PROOF PRE FLUX
SIDE A (SECOND)
1/2
A
LF
耐プリ
C5809
IC1221
66
X5201
X1002
IC5203
C5210
IC5202
MD7
TYPE 49402.5NR
MFD.BY LITTELFUSE INC.
IC1302
C1007
D5209
IC5204
C163
C103
D4552
IC4552
MD12
IC3707
34
C4507
C4508
C4509
C4515
IC4502
CN4701
23
24
CN4501
D101
13
CN4501
G CN201

(VNP2097-A)

SIDE B

D SERVICE MAIN ASSY

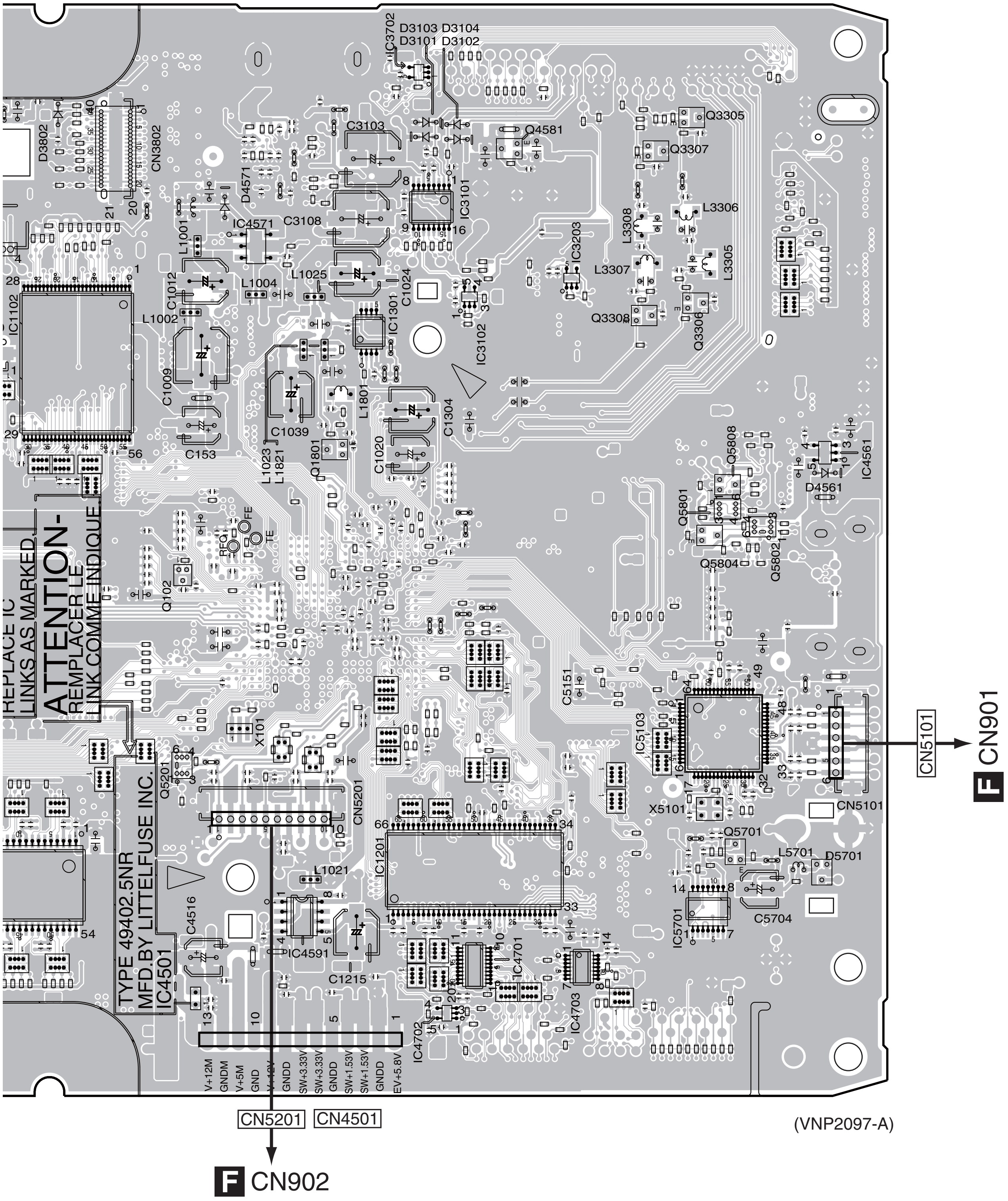
IC	Q
IC3702	
IC501	
	Q3305
	Q4581
	Q3307
IC3101	
IC4571	
IC3203	
IC1102 IC1301	
	Q3306 Q3308
IC3102	
	Q5808
IC4561	Q1801
	Q5801
	Q5802
	Q5804
	Q102
IC5103	
IC200	Q5201
	Q5701
IC1201	
IC201	
IC4541	
IC5701	
IC4701 IC4531	
IC4591	
IC4501	
IC4703	
IC4702	


To STEPPER
CN502
To FRONT
CN601
To SPDL
CN501
To PICKUP
CN101
IC501
54
CN601
UPPER
27
28
L4572
D3802
40
21
20
UPPER
CN502
1
4
28
IC1102
CN3801
40
21
20
1
CN501
BOTTOM
12
29
56
50
L105
F105
B
CAUTION-
REPLACE IC
LINKS AS MARKED
ATTENTION-
REMPLACER LE
LINK COMME INDIQUE
UPPER
CN101
SIDE B (FIRST)
IC200
8
5
1
4
LF
D4541
IC4541
IC201
27
54
28
BOTTOM
CN103
14
IC4531
D4531
TYPE 49402.5NR

SIDE B

PPER

502



D3103 D3104
D3101 D3102
IC3702
Q3305
Q3307
Q4581
C3103
D3802
CN3802
40
21
20
1
D4571
C3108
IC4571
L1001
L1004
L1025
C1012
L1002
IC3101
8
9
16
IC3203
L3308
L3306
L3307
L3305
Q3308
Q3306
IC1102
28
29
56
C1009
C153
C1039
L1023
L1821
Q1801
L1801
C1020
C1304
IC1301
C1024
IC3102
Q5808
IC4561
D4561
Q5801
Q5804
Q5802
REPLACE IC LINKS AS MARKED
ATTENTION-
REMPLACER LE LINK COMME INDIQUE
FE
RFO
TE
Q102
X101
Q5201
CN5201
C5151
IC5103
64
49
48
33
32
17
16
X5101
CN5101
Q5701
L5701
D5701
C5704
IC5701
14
7
TYPE 49402.5NR
MFD.BY LITTELFUSE INC.
IC4501
C4516
IC4591
L1021
IC1201
66
34
33
C1215
IC4701
IC4702
IC4703
54
13
10
5
V+12M
GNDM
V+5M
GND
V+12V
GNDD
SW+3.33V
SW+3.33V
GNDD
SW+1.53V
SW+1.53V
GNDD
EV+5.8V
CN5201
CN4501
F CN902
CN5101
F CN901

(VNP2097-A)

11.5 ETAB ASSY (DVR-660H-K ONLY)

SIDE A **SIDE A**

A

E ETAB ASSY

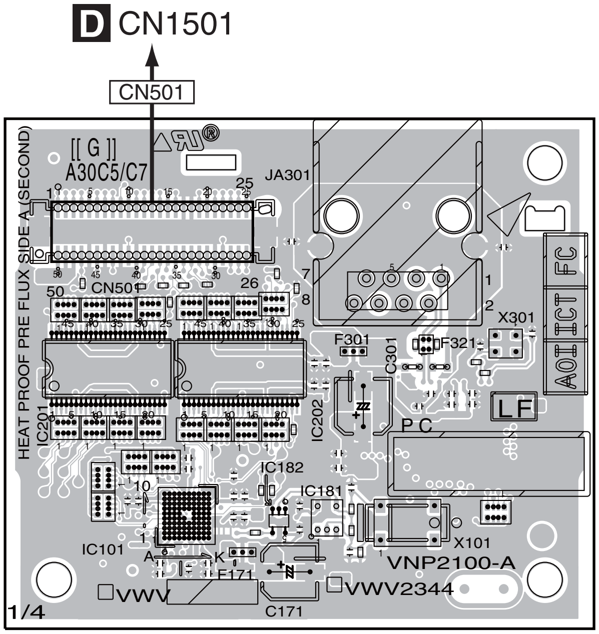
IC Q

B

IC201 IC202
IC182
IC181

C

IC101


D CN1501
CN501
[[G]]
A30C5/C7
HEAT PROOF PRE FLUX SIDE A (SECOND)
JA301
CN501
IC201
IC202
F301
C301
F321
X301
FC
ICT
AOI
LF
PC
IC182
IC181
IC101
X101
VNP2100-A
F171
C171
VWV
VWV2344
1/4

(VNP2100-A)

SIDE B **SIDE B**

D

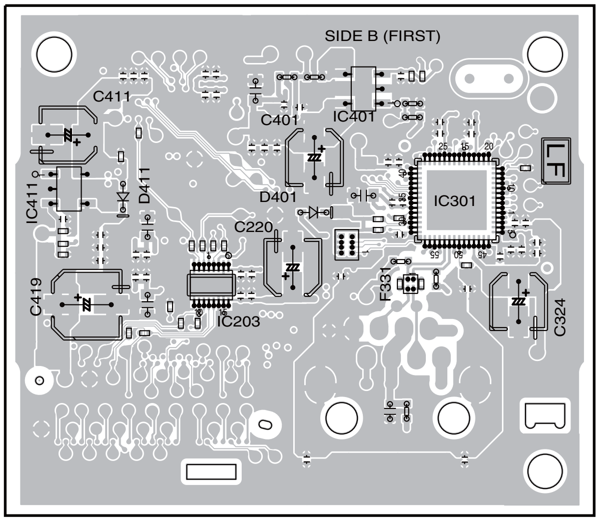
E ETAB ASSY

IC Q

IC401

E

IC411
IC301


SIDE B (FIRST)
C411
C401
IC401
LF
IC411
D411
D401
IC301
C220
F331
C419
IC203
C324

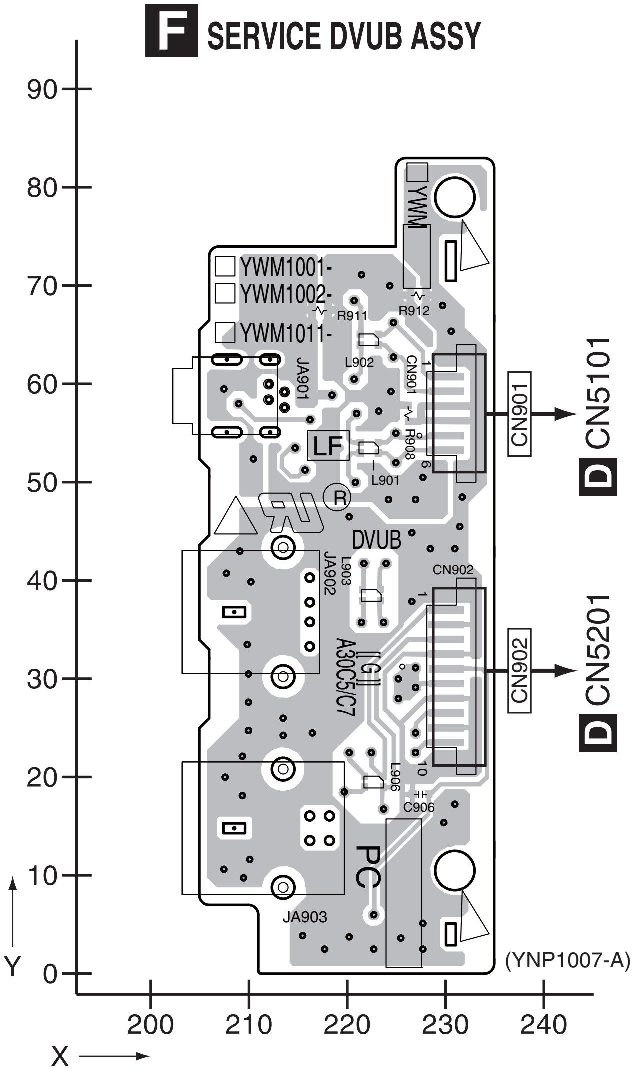
(VNP2100-A)

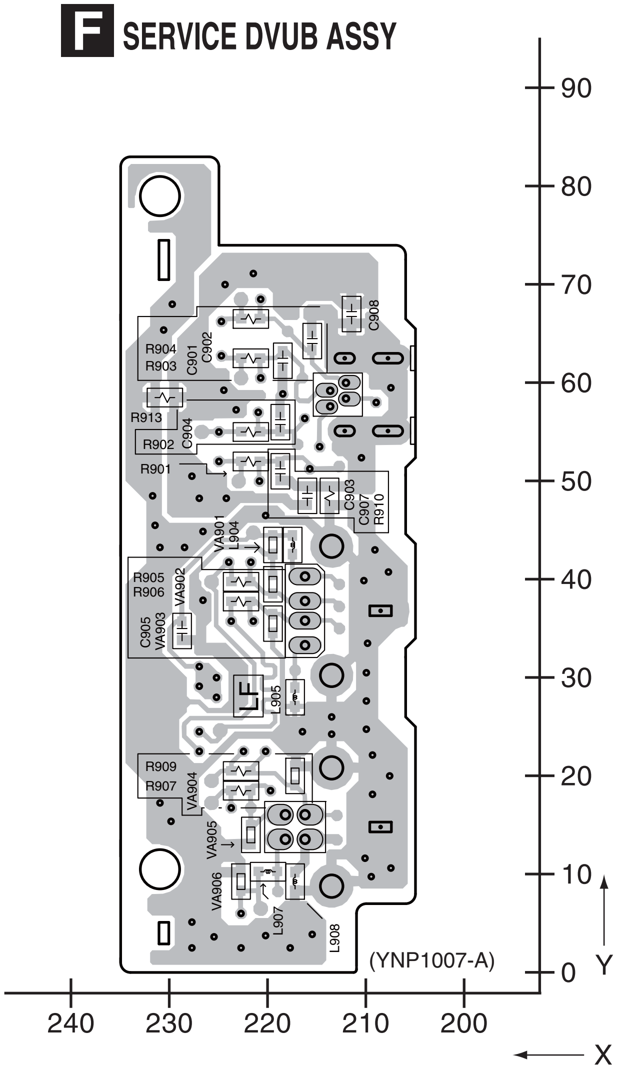
F

11.6 SERVICE DVUB ASSY

SIDE A

SIDE B


F SERVICE DVUB ASSY
90
80
70
60
50
40
30
20
10
0
Y
200
210
220
230
240
X
YWM
YWM1001-
YWM1002-
YWM1011-
R911
R912
L902
JA901
CN901
R908
LF
L901
R
DVUB
L903
JA902
CN902
A30C5/C7
[G]]
L906
C906
PC
JA903
CN901
D CN5101
CN902
D CN5201
(YNP1007-A)


F SERVICE DVUB ASSY
90
80
70
60
50
40
30
20
10
0
Y
240
230
220
210
200
X
C908
R904
R903
C901
C902
R913
C904
R902
R901
C903
C907
R910
VA901
L904
R905
R906
VA902
C905
VA903
LF
L905
R909
R907
VA904
VA905
VA906
L907
L908
(YNP1007-A)

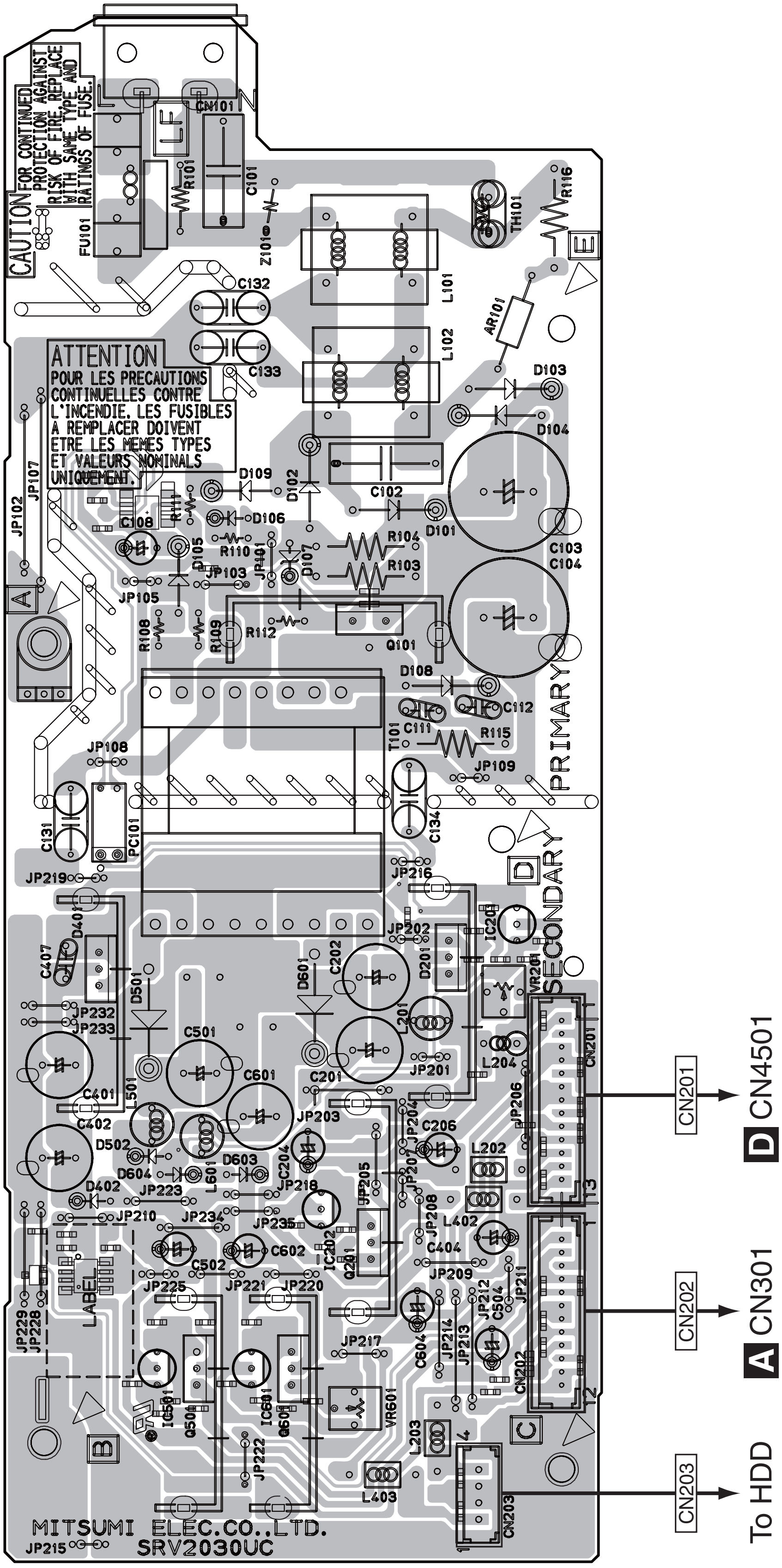
11.7 POWER SUPPLY ASSY

SIDE A

G POWER SUPPLY ASSY

SIDE A

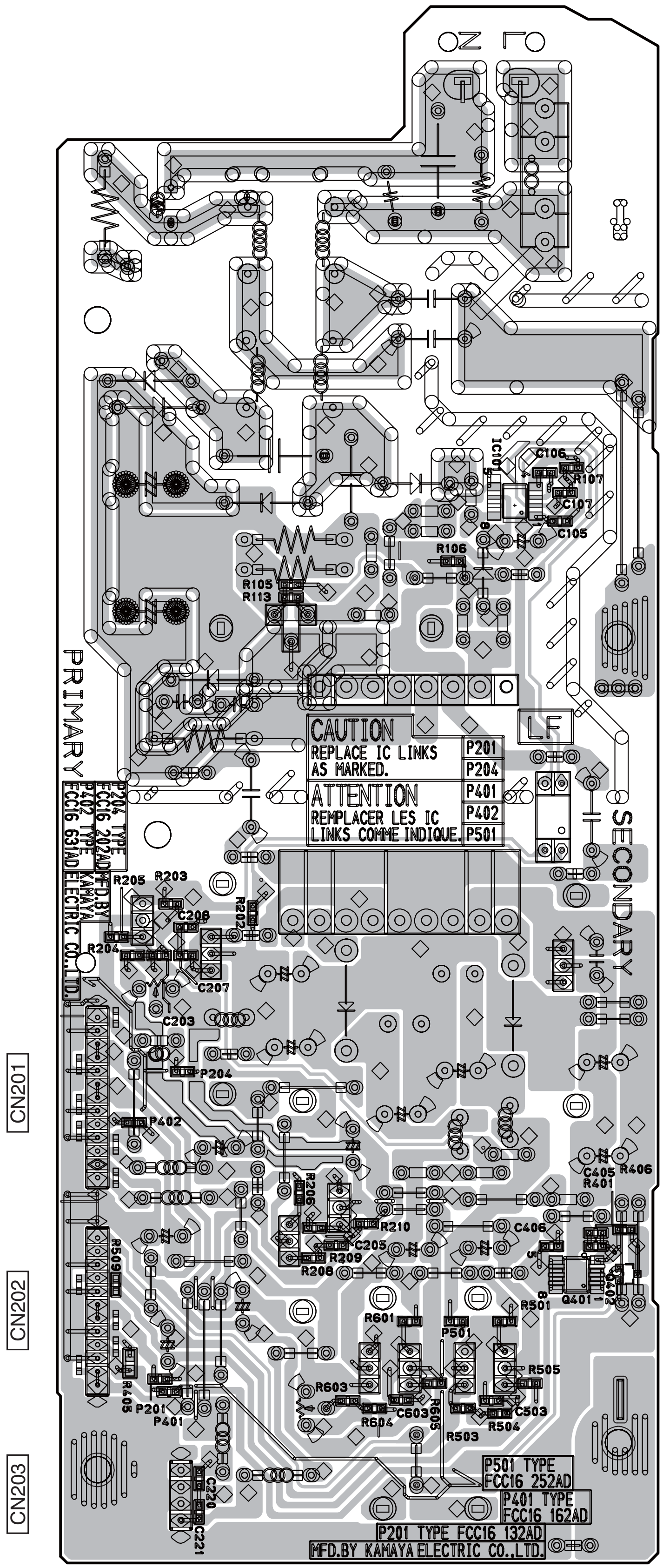
IC	Q
	Q101
IC201	
IC202	Q201
IC501 IC601	Q501 Q601


CAUTION FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE AND RATINGS OF FUSE.
ATTENTION POUR LES PRECAUTIONS CONTINUELLES CONTRE L'INCENDIE, LES FUSIBLES A REMPLACER DOIVENT ETRE LES MEMES TYPES ET VALEURS NOMINALS UNIQUEMENT.
CN101
LF
R101
C101
FU101
Z101
TH101
R116
E
C132
C133
L101
L102
AR101
D103
D104
D109
D102
C102
D101
C103
C104
JP107
JP102
C108
R111
D106
D105
R110
JP101
D107
R104
R103
JP103
JP105
A
R108
R109
R112
Q101
D108
C112
C111
R115
T101
PRIMARY
JP108
JP109
C131
PC101
C134
SECONDARY
D
JP219
JP216
D401
C407
JP202
IC201
D201
VR201
D501
D601
C202
JP232
JP233
C501
L201
L204
CN201
C401
L501
C601
JP201
C201
C402
JP203
JP204
C206
JP206
D502
D604
D603
C204
L202
D402
JP223
L601
JP218
JP205
JP207
JP208
13
JP210
JP234
JP235
L402
C404
C502
C602
IC202
Q201
JP209
JP211
JP225
JP221
JP220
JP212
C504
LABEL
JP229
JP228
JP217
C604
JP214
JP213
CN202
12
IC501
Q501
IC601
Q601
VR601
C
B
JP222
L203
4
L403
CN203
MITSUMI ELEC.CO.,LTD.
SRV2030UC
JP215
CN201
D CN4501
CN202
A CN301
CN203
To HDD

SIDE B **SIDE B**

G POWER SUPPLY ASSY

IC	Q
IC101	
	Q402 Q401


PRIMARY
SECONDARY
IC101
C106
R107
C107
C105
R106
R105
R113
CAUTION
REPLACE IC LINKS
AS MARKED.
ATTENTION
REMPLACER LES IC
LINKS COMME INDIQUE.
P201
P204
P401
P402
P501
LF
P204 TYPE
FCC16 202AD
P402 TYPE
FCC16 631AD
MFD.BY KAMAYA
ELECTRIC CO.,LTD.
R205
R203
C208
R202
R204
C207
C203
P204
P402
CN201
R206
R210
C205
R209
R208
C406
C405
R406
R401
R509
CN202
R501
Q401
Q402
R601
P501
R505
R603
C603
R605
R604
R503
C503
R504
R405
P201
P401
CN203
C220
C221
P501 TYPE
FCC16 252AD
P401 TYPE
FCC16 162AD
P201 TYPE FCC16 132AD
MFD.BY KAMAYA ELECTRIC CO.,LTD.

12. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56×10^1 → 561 .... RD1/4PU$\boxed{5}\boxed{6}\boxed{1}$J
47k Ω → 47×10^3 → 473 .... RD1/4PU$\boxed{4}\boxed{7}\boxed{3}$J
0.5 Ω → R50 .... RN2H$\boxed{R}\boxed{5}\boxed{0}$K
1 Ω → 1R0 .... RS1P$\boxed{1}\boxed{R}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562×10^1 → 5621 .... RN1/4PC$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

- *Meaning of the figures and others in the parentheses in the parts list.*

Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.

IC 301 (A, 91, 111) IC NJM2068V

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
		1..ETAB ASSY (DVR-660H-K ONLY)	VWV2344
NSP		1..TUJB ASSY	YWM1007
		2..SERVICE DVUB ASSY	YXX1001
		2..SERVICE TUJB ASSY	YXX1011
NSP		1..FLKB ASSY	YWM1005
		2..SERVICE FRJB ASSY	YXX1004
		2..SERVICE FLKY ASSY	YXX1007
NSP		1..SERVICE LOADER MAIN (DVR-660H-K)	VXU1014
NSP		1..SERVICE LOADER MAIN (DVR-560H-K,DVR-460H-K)	VXU1013
		2..SERVICE MAIN ASSY (DVR-660H-K)	VXX3309
		2..SERVICE MAIN ASSY (DVR-560H-K,DVR-460H-K)	VXX3308
⚠		1..POWER SUPPLY ASSY	VWR1408

A SERVICE TUJB ASSY

MISCELLANEOUS

Mark	No.	Description	Part No.
	IC 101	(A,201,131) MICROCOMPUTER IC	PMC026A8
	IC 102	(A,225,166) RESET IC	BD4846G
	IC 104	(A,175,152) IC	TC7MB3257FK
⚠	IC 150	(B,229,147) FUSE	CEK1278
⚠	IC 317	(B,167,59) FUSE	CEK1278
	IC 401	(A,94,122) IC FOR DVD REC	HA118326APFR
	IC 402	(A,119,99) OP-AMP IC	BA4560RF
	Q 101	(A,218,157) DIGITAL TRANSISTOR	DTC124EUA
	Q 201	(B,196,68) TRANSISTOR	2SD2114K
	Q 303	(A,153,183) TRANSISTOR	UMD2N
	Q 304	(A,160,180) TRANSISTOR	2SD2153
	Q 305	(B,179,66) TRANSISTOR	UMD2N
	Q 306	(B,185,66) TRANSISTOR	2SC2411K
	Q 307	(B,170,59) TRANSISTOR	UMD2N
	Q 308	(B,170,67) TRANSISTOR	2SC2411K
	Q 309	(B,163,56) TRANSISTOR	2SC5876
	Q 310	(B,159,69) TRANSISTOR	2SC4081
	Q 311	(B,156,60) CHIP TRANSISTOR	HN1A01FU
	Q 403	(A,94,99) TRANSISTOR	2SA1576A
	Q 404	(A,93,83) TRANSISTOR	UMD2N
	Q 405	(A,90,99) TRANSISTOR	2SC4081
	Q 406	(A,42,78) TRANSISTOR	2SD2114K
	Q 407	(A,42,97) TRANSISTOR	2SD2114K
	Q 408	(A,42,84) TRANSISTOR	2SD2114K
	Q 409	(A,48,100) TRANSISTOR	2SD2114K
	Q 410	(A,87,96) TRANSISTOR	2SC4081
	Q 602	(B,59,163) TRANSISTOR	2SA1576A
	Q 603	(B,66,167) TRANSISTOR	2SC4081
	D 101	(A,221,164) DIODE	1SS355
	D 102	(A,218,163) DIODE	1SS355
	D 103	(A,150,63) DIODE	1SS355
	D 104	(B,167,176) DIODE	1SR154-400
	D 110	(B,174,176) DIODE	1SS352
	D 201	(B,189,62) DIODE	1SS355
	D 301	(B,172,48) DIODE	UDZS15(B)
	D 302	(B,176,72) DIODE	UDZS9R1(B)
	D 303	(B,160,54) DIODE	1SS355
	D 304	(B,174,69) DIODE	1SS355
	D 401	(A,107,96) DIODE	UDZS11(B)
	D 402	(A,74,150) DIODE	UDZS6R8(B)
	D 418	(B,93,79) DIODE	1SS355
	D 419	(A,97,84) DIODE	1SS355
	D 701	(B,29,33) DIODE	1SS355
	L 201	(A,192,60) RADIAL INDUCTOR	ATH1109
	L 304	(A,160,65) RADIAL INDUCTOR	LFCA331J
	L 305	(B,159,46) INDUCTOR	CTF1399
	L 602	(B,86,172) INDUCTOR	CTF1399
	L 604	(B,43,172) INDUCTOR	CTF1306
	L 605	(B,47,172) INDUCTOR	CTF1306
	JA 402	(A,17,78) 9P PIN JACK	VKB1250
	JA 403	(A,17,132) JACK	VKB1183
	JA 701	(A,18,25) JACK	RKN1004
	KN 101	(A,131,184) WRAPPING TERMINAL	VNF1084
	KN 102	(A,192,46) WRAPPING TERMINAL	VNF1084
	X 101	(A,204,157) CRYSTAL OSCILLATOR (15.0MHz)	CSS1653
	X 102	(A,210,156) CRYSTAL RESONATOR (32 KHz)	VSS1197
	CN 101	(A,35,23) 40P CONNECTOR	VKN2007

Mark	No.	Description	Part No.
CN	103 (A,235,159)	9P CONNECTOR	VKN2015
CN	105 (A,232,148)	CONNECTOR	HLEM17S-1
CN	106 (A,238,107)	CONNECTOR	HLEM11S-1
CN	201 (A,149,43)	CONNECTOR	S2B-PH-K-S
CN	301 (A,178,35)	CONNECTOR	S5B-PH-K-S
U	601 (A,26,178)	TV TUNER PACK	VXF1103
	401	2P 4PIN MINIDIN(S)	AKP1234
⚠ BT	101 (A,179,180)	LITHIUM BATTERY	VEM1037

RESISTORS

Mark	No.	Description	Part No.
R	101 (A,187,125)		RS1/16S101J
R	102 (A,182,123)		RS1/16S101J
R	103 (A,187,118)		RS1/16S101J
R	104 (A,224,158)		RS1/16S473J
R	105 (A,215,149)		RS1/16S101J
R	106 (A,221,158)		RS1/16S0R0J
R	107 (A,224,159)		RS1/16S103J
R	109 (A,212,144)		RS1/16S331J
R	110 (A,211,144)		RS1/16S101J
R	111 (A,212,149)		RS1/16S101J
R	112 (A,222,161)		RS1/16S103J
R	113 (A,219,161)		RS1/16S0R0J
R	116 (B,208,153)		RS1/16S224J
R	117 (A,204,145)		RS1/16S105J
R	118 (B,201,150)		RS1/16S0R0J
R	119 (A,192,167)	CARBON FILM RESISTOR	RD1/4PU393J
R	120 (A,197,163)	CARBON FILM RESISTOR	RD1/4PU682J
R	123 (A,197,149)		RS1/16S101J
R	124 (A,197,146)		RS1/16S101J
R	126 (A,194,147)		RS1/16S101J
R	129 (A,195,149)		RS1/16S101J
R	130 (B,235,155)		RS1/16S0R0J
R	131 (A,190,153)		RS1/16S104J
R	134 (A,187,148)		RS1/16S102J
R	135 (A,185,152)		RS1/16S102J
R	136 (A,189,148)		RS1/16S102J
R	139 (A,184,149)		RS1/16S682J
R	140 (A,182,148)		RS1/16S470J
R	141 (A,182,151)		RS1/16S682J
R	142 (A,181,151)		RS1/16S470J
R	143 (A,183,145)		RS1/16S101J
R	144 (A,185,139)		RS1/16S0R0J
R	145 (A,183,130)		RS1/16S104J
R	150 (A,190,117)		RS1/16S0R0J
R	151 (A,195,118)		RS1/16S0R0J
R	152 (A,200,83)		RS1/16S101J
R	153 (A,198,116)		RS1/16S101J
R	154 (B,202,113)		RS1/16S101J
R	155 (A,201,84)		RS1/16S101J
R	156 (A,201,116)		RS1/16S101J
R	157 (A,203,117)		RS1/16S104J
R	158 (A,202,119)		RS1/16S104J
R	159 (A,205,117)		RS1/16S0R0J
R	160 (A,206,114)		RS1/16S101J
R	161 (A,201,108)		RS1/16S0R0J
R	165 (A,206,117)		RS1/16S104J
R	168 (A,211,112)		RS1/16S181J
R	170 (B,205,123)		RS1/16S104J
R	171 (A,215,114)		RS1/16S101J

Mark	No.	Description	Part No.
R	172 (A,216,114)		RS1/16S101J
R	173 (A,218,113)		RS1/16S104J
R	174 (A,217,111)		RS1/16S104J
R	175 (A,219,113)		RS1/16S331J
R	176 (A,220,124)		RS1/16S102J
R	180 (A,221,132)		RS1/16S101J
R	181 (A,218,133)		RS1/16S101J
R	182 (A,221,134)		RS1/16S101J
R	183 (A,218,135)		RS1/16S101J
R	184 (A,221,136)		RS1/16S101J
R	188 (A,221,140)		RS1/16S331J
R	189 (A,221,142)		RS1/16S471J
R	193 (B,230,171)		RS1/16S104J
R	194 (B,236,171)		RS1/16S104J
R	195 (B,228,171)		RS1/16S104J
R	196 (B,238,171)		RS1/16S101J
R	197 (A,52,22)		RS1/16S0R0J
R	199 (A,209,110)		RS1/16S101J
R	200 (A,221,143)		RS1/16S101J
R	204 (A,182,136)		RS1/16S101J
R	205 (A,185,134)		RS1/16S101J
R	211 (B,179,175)		RS1/16S102J
R	212 (A,196,96)		RS1/16S0R0J
R	213 (A,192,156)		RS1/16S103J
R	218 (A,184,60)		RS1/10S0R0J
R	219 (B,195,74)		RS1/16S332J
R	220 (B,196,71)		RS1/16S222J
R	221 (A,177,145)		RS1/16S101J
R	222 (A,184,140)		RS1/16S0R0J
R	223 (A,174,157)		RS1/16S0R0J
R	224 (A,177,156)		RS1/16S0R0J
R	228 (A,196,160)		RS1/16S0R0J
R	251 (B,147,48)		RS1/10S0R0J
R	302 (B,176,55)		RS1/10S0R0J
R	303 (B,179,55)		RS1/10S0R0J
R	305 (B,158,180)		RS1/16S330J
R	306 (B,180,62)		RS1/16S330J
R	307 (A,161,103)		RS1/10S0R0J
R	308 (A,161,101)		RS1/10S0R0J
R	309 (B,170,56)		RS1/16S152J
R	310 (B,162,61)		RS1/16S472J
R	311 (B,162,71)		RS1/16S821J
R	312 (B,153,58)		RS1/16S103J
R	313 (B,158,54)		RS1/16S184J
R	314 (B,154,67)		RS1/16S223J
R	315 (B,156,54)		RS1/16S1003F
R	316 (B,154,54)		RS1/16S2202F
R	318 (B,160,180)		RS1/16S0R0J
R	401 (A,98,100)		RS1/10S0R0J
R	404 (A,104,99)		RS1/10S0R0J
R	407 (A,58,116)		RS1/10S0R0J
R	408 (A,117,114)		RS1/16S471J
R	409 (A,115,114)		RS1/16S681J
R	410 (A,89,106)		RS1/16S103J
R	411 (A,114,116)		RS1/16S681J
R	412 (B,90,126)		RS1/16S185J
R	413 (A,117,117)		RS1/16S471J
R	414 (A,115,122)		RS1/16S471J
R	415 (A,115,124)		RS1/16S471J

Mark	No.	Description	Part No.
	R 416	(A,116,126)	RS1/16S471J
	R 417	(A,116,128)	RS1/16S471J
	R 418	(A,116,130)	RS1/16S471J
	R 419	(A,116,132)	RS1/16S471J
	R 420	(B,91,130)	RS1/16S185J
	R 421	(A,112,135)	RS1/16S105J
	R 422	(A,111,113)	RS1/16S103J
	R 423	(A,117,135)	RS1/10S75R0F
	R 424	(A,104,134)	RS1/16S105J
	R 425	(B,98,126)	RS1/16S104J
	R 426	(A,107,140)	RS1/10S75R0F
	R 428	(B,97,131)	RS1/16S0R0J
	R 430	(A,100,143)	RS1/16S105J
	R 431	(A,95,136)	RS1/16S105J
	R 432	(A,93,145)	RS1/16S105J
	R 433	(B,48,68) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 434	(B,46,68)	RS1/10S0R0J
	R 436	(A,78,119)	RS1/16S101J
	R 437	(A,78,121)	RS1/16S101J
	R 438	(A,73,147)	RS1/10S0R0J
	R 439	(B,90,125)	RS1/16S185J
	R 441	(A,97,153)	RS1/10S75R0F
	R 442	(A,91,150)	RS1/10S75R0F
	R 443	(A,105,143)	RS1/10S75R0F
	R 444	(A,99,149)	RS1/10S75R0F
	R 445	(A,101,151)	RS1/10S75R0F
	R 446	(A,103,144)	RS1/10S75R0F
	R 447	(A,94,151)	RS1/10S75R0F
	R 448	(A,75,147)	RS1/10S0R0J
	R 450	(B,39,142)	RS1/16S101J
	R 451	(B,41,142)	RS1/16S104J
	R 452	(B,43,156)	RS1/16S104J
	R 453	(A,124,103)	RS1/16S8201F
	R 454	(A,106,108)	RS1/16S1002F
	R 455	(A,94,103)	RS1/16S470J
	R 458	(A,96,98)	RS1/16S471J
	R 459	(A,89,103)	RS1/16S471J
	R 460	(A,91,103)	RS1/16S470J
	R 461	(A,84,97)	RS1/16S681J
	R 462	(A,108,105)	RS1/16S1002F
	R 463	(A,112,100)	RS1/16S8201F
	R 464	(B,40,39) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 465	(A,88,100)	RS1/16S471J
	R 466	(B,37,39)	RS1/10S0R0J
	R 467	(B,41,56) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 468	(B,40,45) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 469	(B,37,45)	RS1/10S0R0J
	R 470	(B,43,50) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 471	(B,41,50)	RS1/10S0R0J
	R 472	(B,41,89) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 473	(B,39,89)	RS1/10S0R0J
	R 474	(B,48,80) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 475	(B,46,80)	RS1/10S0R0J
	R 476	(B,46,74) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 477	(B,41,74)	RS1/10S0R0J
	R 478	(B,39,61) CHIP TYPE RESISTOR	RS1/10S68R0F
	R 479	(A,45,79)	RS1/16S471J
	R 480	(B,37,61)	RS1/10S0R0J
	R 481	(B,38,56)	RS1/10S0R0J

Mark	No.	Description	Part No.
	R 482	(B,35,75)	RS1/16S101J
	R 483	(A,47,84)	RS1/16S471J
	R 484	(A,42,81)	RS1/16S102J
	R 485	(B,49,83)	RS1/16S223J
	R 486	(A,44,100)	RS1/16S102J
	R 487	(A,41,87)	RS1/16S102J
	R 488	(A,42,94)	RS1/16S471J
	R 489	(B,48,94)	RS1/16S223J
	R 490	(B,34,89)	RS1/16S101J
	R 491	(A,50,100)	RS1/16S102J
	R 492	(A,48,97)	RS1/16S471J
	R 493	(B,43,83)	RS1/16S101J
	R 494	(B,43,96)	RS1/16S101J
	R 495	(B,39,156)	RS1/16S101J
	R 496	(B,43,150)	RS1/16S104J
	R 497	(B,39,150)	RS1/16S101J
	R 498	(B,39,164)	RS1/16S101J
	R 499	(B,43,162)	RS1/16S104J
	R 601	(B,64,172)	RS1/16S0R0J
	R 604	(B,55,174)	RS1/16S0R0J
	R 605	(B,83,170)	RS1/16S103J
	R 606	(B,77,172)	RS1/16S103J
	R 607	(B,56,166)	RS1/16S102J
	R 609	(B,26,174)	RS1/16S0R0J
	R 610	(B,54,174)	RS1/16S0R0J
	R 611	(B,59,174)	RS1/16S0R0J
	R 613	(B,127,173)	RS1/16S0R0J
	R 614	(B,129,176)	RS1/16S0R0J
	R 635	(B,65,175)	RS1/16S0R0J
	R 636	(B,55,187)	RS1/16S0R0J
	R 637	(B,77,185)	RS1/16S0R0J
	R 701	(B,36,34)	RS1/16S224J
	R 702	(B,27,32)	RS1/16S221J
	R 704	(B,31,32)	RS1/16S221J

CAPACITORS

Mark	No.	Description	Part No.
	C 104	(A,216,147)	CEAT220M25
	C 105	(A,223,156)	CKSRYF104Z25
	C 106	(A,226,169)	CKSRYF104Z25
	C 107	(A,209,144)	CCSRCH331J50
	C 109	(A,218,155)	CKSRYF104Z25
	C 110	(A,219,164)	CKSRYB105K10
	C 111	(B,214,159)	CCSRCH120J50
	C 112	(B,210,159)	CCSRCH120J50
	C 113	(A,201,145)	CKSRYF105Z10
	C 114	(B,201,158)	CCSRCH150J50
	C 115	(B,200,153)	CCSRCH150J50
	C 120	(B,165,179)	CKSRYF104Z25
	C 121	(B,237,153)	CKSRYF105Z10
	C 122	(B,173,181)	CKSRYF105Z10
	C 123	(A,171,178)	CEAT221M6R3
	C 126	(A,187,132)	CKSRYF104Z25
	C 131	(A,192,119)	CKSRYF104Z25
	C 132	(A,193,116)	CKSRYF104Z25
	C 133	(A,197,110)	CKSRYF104Z25
	C 134	(A,203,106)	CKSRYF104Z25
	C 136	(A,213,121)	CKSRYF105Z10
	C 138	(A,221,119)	CEAT2R2M50
	C 139	(A,216,126)	CKSRYF104Z25

Mark	No.	Description	Part No.
C	140	(A,216,130)	CKSRYF104Z25
C	141	(A,172,157)	CKSRYF105Z10
C	142	(A,172,159)	CCSRCH102J50
C	147	(B,231,159)	CKSRYF104Z25
C	152	(A,196,97)	CKSRYF105Z10
C	154	(B,229,143)	CKSRYF104Z25
C	155	(B,239,153)	CCSRCH102J50
C	202	(B,186,59)	CKSRYF104Z25
C	204	(A,187,55)	CEAT101M16
C	205	(A,184,50)	CEAT220M25
C	206	(B,193,72)	CCSRCH471J50
C	208	(B,149,46)	CKSRYB104K16
C	211	(A,191,150)	CKSRYF104Z25
C	301	(B,168,43)	CKSRYF104Z25
C	302	(B,176,40)	CKSRYF104Z25
C	303	(A,169,46)	CEAT101M16
C	304	(A,176,45)	CEAT101M16
C	309	(B,164,182)	CKSRYF104Z25
C	310	(B,165,189)	CKSRYF104Z25
C	311	(A,162,188)	CEAT221M16
C	312	(A,149,182)	CEAT101M16
C	313	(B,179,60)	CKSRYF105Z10
C	314	(B,179,70)	CKSRYF104Z25
C	315	(A,181,73)	CEAT101M16
C	316	(A,188,71)	CEAT101M16
C	317	(B,170,54)	CKSRYF104Z25
C	318	(B,170,64)	CKSRYF104Z25
C	319	(A,175,65)	CEAT101M16
C	320	(A,167,71)	CEAT101M16
C	321	(B,166,61)	CKSRYF104Z25
C	322	(B,164,59)	CCSRCH101J50
C	323	(B,163,53) CERAMIC CAPACITOR	CKSQYF105Z50
C	324	(B,156,64)	CKSRYF104Z25
C	326	(A,159,50)	CEAT100M50
C	328	(B,157,44)	CKSRYF104Z50
C	329	(B,146,184)	CKSRYF104Z25
C	401	(A,100,109)	CKSRYF105Z10
C	402	(A,108,102)	CKSRYF104Z25
C	403	(A,104,104)	CKSRYF104Z25
C	404	(A,93,111)	CKSRYF105Z10
C	406	(A,86,106)	CKSRYB104K16
C	407	(A,84,106)	CKSRYB105K10
C	408	(A,82,106)	CKSRYB105K10
C	409	(A,80,106)	CKSRYB105K10
C	410	(A,79,106)	CKSRYB105K10
C	411	(A,115,113)	CKSRYB105K10
C	412	(A,114,118)	CKSRYB105K10
C	413	(B,92,115)	CKSRYB104K16
C	414	(A,107,112)	CKSRYF104Z25
C	415	(A,109,112)	CKSRYF104Z25
C	418	(A,112,120)	CKSRYF105Z10
C	419	(A,112,122)	CKSRYB105K10
C	420	(A,112,124)	CKSRYB105K10
C	421	(A,113,126)	CKSRYB105K10
C	422	(A,113,128)	CKSRYB105K10
C	423	(A,113,130)	CKSRYB105K10
C	424	(A,113,132)	CKSRYB105K10
C	425	(A,114,134)	CKSRYB105K10
C	426	(A,105,137)	CKSRYB104K16

Mark	No.	Description	Part No.
C	427	(A,108,143)	CKSRYB103K50
C	428	(A,95,134)	CKSRYB104K16
C	429	(A,103,138)	CKSRYB105K10
C	430	(A,101,136)	CKSRYB104K16
C	431	(A,98,135)	CKSRYB104K16
C	432	(A,97,140)	CKSRYB105K10
C	434	(A,89,134)	CKSRYB104K16
C	435	(A,80,114)	CKSRYF104Z25
C	436	(A,79,114)	CKSRYF104Z25
C	437	(A,77,112)	CKSRYF104Z25
C	438	(A,78,118)	CKSRYF105Z10
C	439	(B,87,125)	CKSRYB104K16
C	440	(A,88,137)	CKSRYB104K16
C	441	(A,81,139)	CKSRYF105Z10
C	442	(A,81,135)	CKSRYF104Z25
C	443	(A,100,145)	CKSRYB105K10
C	444	(A,94,139)	CKSRYB105K10
C	445	(A,86,146)	CKSRYB105K10
C	446	(A,92,143)	CKSRYB105K10
C	447	(A,99,153)	CKSRYB103K50
C	448	(A,104,147)	CKSRYB103K50
C	452	(A,104,93)	CEAT101M10
C	453	(A,92,107)	CEAT101M10
C	454	(A,73,113)	CEAT101M10
C	455	(A,121,121)	CEAT4R7M50
C	456	(A,112,144)	CEAT1R0M50
C	457	(A,89,141)	CEAT100M50
C	458	(A,73,138)	CEAT101M10
C	459	(A,94,96)	CKSRYF105Z10
C	460	(A,91,96)	CKSRYF105Z10
C	461	(B,43,142)	CCSRCH471J50
C	462	(B,41,156)	CCSRCH471J50
C	463	(B,41,150)	CCSRCH471J50
C	464	(A,117,95)	CKSRYF104Z25
C	465	(B,41,162)	CCSRCH471J50
C	467	(A,87,93)	CKSRYF105Z10
C	468	(A,111,114)	CKSRYF104Z25
C	469	(A,110,116)	CKSRYF104Z25
C	470	(B,34,143)	CCSRCH102J50
C	471	(A,122,107)	CEAT100M50
C	472	(A,127,96)	CEAL100M16
C	473	(A,117,86)	CEAT101M16
C	474	(A,112,107)	CEAT100M50
C	475	(A,113,95)	CEAL100M16
C	476	(B,48,52)	CKSRYB103K50
C	477	(B,34,157)	CCSRCH102J50
C	478	(A,58,68) ELECT. CAPACITOR	CEAT102M6R3
C	482	(B,33,75)	CCSRCH471J50
C	483	(A,60,48) ELECT. CAPACITOR	CEAT102M6R3
C	484	(B,34,85)	CCSRCH471J50
C	485	(B,46,57)	CKSRYB103K50
C	486	(A,60,57) ELECT. CAPACITOR	CEAT102M6R3
C	487	(A,49,91) ELECT. CAPACITOR	CEAT102M6R3
C	488	(A,56,78) ELECT. CAPACITOR	CEAT471M6R3
C	489	(A,49,73) ELECT. CAPACITOR	CEAT471M6R3
C	490	(A,48,62) ELECT. CAPACITOR	CEAT102M6R3
C	491	(A,57,85)	CEAT470M16
C	492	(A,99,81)	CEAT221M6R3
C	493	(B,41,83)	CCSRCH471J50

Mark	No.	Description	Part No.
C	495	(A,57,96)	CEAT470M16
C	496	(A,89,135)	CKSRYF104Z25
C	497	(B,41,96)	CCSRCH471J50
C	498	(B,34,148)	CCSRCH102J50
C	499	(B,34,162)	CCSRCH102J50
C	603	(B,51,174)	CKSRYB222K50
C	604	(B,61,174)	CCSRCH101J50
C	605	(B,43,174)	CCSRCH100D50
C	606	(B,47,174)	CCSRCH100D50
C	607	(A,74,165)	CEAT1R0M50
C	609	(A,62,167)	CEAT101M10
C	701	(B,39,35)	CKSRYF105Z10
C	702	(B,29,29)	CCSRCH681J50
C	703	(B,24,31)	CKSRYF104Z25

B SERVICE FLKY ASSY

MISCELLANEOUS

Mark	No.	Description	Part No.
IC	101	(B,143,78) FL DRIVER IC	PT6315
Q	103	(B,122,57) DIGITAL TRANSISTOR	DTC124EUA
Q	104	(B,204,73) TRANSISTOR	2SC5712
Q	105	(B,201,66) TRANSISTOR	2SA1576A
Q	106	(B,211,61) TRANSISTOR	2SC4081
Q	107	(B,108,56) DIGITAL TRANSISTOR	DTC124EUA
Q	111	(B,98,56) DIGITAL TRANSISTOR	DTC124EUA
Q	112	(B,61,49) TRANSISTOR	2SD2153
Q	203	(B,144,32) DIGITAL TRANSISTOR	DTC124EUA
Q	204	(B,79,18) DIGITAL TRANSISTOR	DTC124EUA
Q	206	(B,76,23) DIGITAL TRANSISTOR	DTC124EUA
D	107	(B,222,46) DIODE	RF101L2S
D	108	(B,202,81) DIODE	UDZS15(B)
D	109	(B,200,73) DIODE	1SS355
D	110	(B,213,71) DIODE	RF101L2S
D	111	(B,209,79) DIODE	UDZS2R4(B)
D	112	(B,200,83) DIODE	UDZS13(B)
D	113	(A,123,62) LED(RED)	SLR-343VC(NPQ)
D	205	(A,83,21) LED(BLUE)	SLR343BC4T(JKLM)
D	212	(A,73,22) LED(ORANGE)	SLR-343DC(NPQ)
L	101	(A,198,70) AXIAL INDUCTOR	LAU220J
V	101	(A,97,89) FLUORESCENT TUBE	VAW1091
S	103	(A,93,45) SWITCH	VSG1024
S	104	(A,93,39) SWITCH	VSG1024
S	105	(A,68,39) SWITCH	VSG1024
S	106	(A,119,39) SWITCH	VSG1024
S	107	(A,52,39) SWITCH	VSG1024
S	108	(A,119,45) SWITCH	VSG1024
S	109	(A,52,45) SWITCH	VSG1024
S	110	(A,213,40) SWITCH	VSG1024
S	111	(A,68,45) SWITCH	VSG1024
S	112	(A,83,72) SWITCH	VSG1024
S	113	(A,61,63) SWITCH	VSG1024
S	114	(A,36,63) SWITCH	VSG1024
S	115	(A,9,63) SWITCH	VSG1024
S	201	(A,149,44) SWITCH	VSG1024
S	202	(A,79,10) SWITCH	VSG1024
T	101	(A,223,54) TRANSFORMER	VTT1171
CN	101	(A,188,63) CONNECTOR	9604S-17C
	102	HOUSING ASS'Y(6P)	YKP1007
	103	REMOTE RECEIVER UNIT	GP1UM28XK0VF

RESISTORS

Mark	No.	Description	Part No.
R	104	(B,196,60)	RS1/16S0R0J
R	110	(B,126,74)	RS1/16S470J
R	111	(B,129,74)	RS1/16S470J
R	112	(B,124,74)	RS1/16S470J
R	113	(B,134,72)	RS1/16S823J
R	117	(B,195,75)	RS1/16S104J
R	118	(B,193,75)	RS1/16S102J
R	119	(B,210,73)	RS1/16S273J
R	120	(B,203,65)	RS1/16S103J
R	121	(B,216,59)	RS1/10S221J
R	122	(B,216,56)	RS1/16S122J
R	123	(B,210,83)	RS1/16S103J
R	124	(B,205,61)	RS1/16S102J
R	125	(B,81,43)	RS1/16S103J
R	126	(B,83,43)	RS1/16S103J
R	127	(B,75,44)	RS1/16S222J
R	128	(B,111,42)	RS1/16S222J
R	129	(B,73,42)	RS1/16S222J
R	130	(B,114,40)	RS1/16S222J
R	131	(B,71,42)	RS1/16S332J
R	132	(B,116,40)	RS1/16S332J
R	133	(B,117,63)	RS1/16S271J
R	135	(B,215,40)	RS1/16S562J
R	137	(B,220,83)	RS1/16S0R0J
R	138	(B,193,84)	RS1/16S0R0J
R	139	(B,115,63)	RS1/16S271J
R	144	(B,150,68)	RS1/16S0R0J
R	148	(B,77,44)	RS1/16S470J
R	149	(B,88,44)	RS1/16S470J
R	150	(B,61,58)	RS1/16S562J
R	152	(B,102,66)	RS1/16S271J
R	155	(B,49,54)	RS1/16S152J
R	156	(B,47,54)	RS1/16S392J
R	157	(B,47,51)	RS1/16S152J
R	158	(B,63,44)	RS1/16S103J
R	159	(B,14,56)	RS1/16S470J
R	160	(B,16,56)	RS1/16S222J
R	161	(B,56,59)	RS1/16S222J
R	162	(B,21,61)	RS1/16S0R0J
R	163	(B,19,59)	RS1/16S0R0J
R	164	(B,52,55)	RS1/16S152J
R	165	(B,47,58)	RS1/16S0R0J
R	166	(B,47,49)	RS1/16S152J
R	204	(B,151,28)	RS1/16S562J
R	205	(B,78,13)	RS1/16S332J
R	221	(B,61,27)	RS1/16S182J
R	222	(B,98,26)	RS1/16S182J
R	224	(B,65,27)	RS1/16S182J
R	270	(B,149,28)	RS1/16S182J
R	272	(B,147,28)	RS1/16S182J

CAPACITORS

Mark	No.	Description	Part No.
C	103	(B,95,83)	CKSRYB103K50
C	104	(B,216,85)	CKSRYB103K50
C	106	(B,148,68)	CKSRYF104Z25
C	107	(B,155,82)	CKSRYF104Z50
C	112	(B,132,80)	CKSRYF104Z25

Mark	No.	Description	Part No.
	C 113 (A,206,55)		CEAL101M10
	C 115 (B,197,66)		CKSRYF104Z25
	C 116 (A,200,62)		CEJQ101M16
	C 117 (B,206,65)		CKSRYB223K50
	C 118 (A,218,63)	ELECTR. CAPACITOR	CEAL100M50
	C 119 (B,98,35)		CKSRYF104Z25
	C 121 (B,212,56)		CKSRYB103K50
	C 123 (B,108,42)		CKSRYF104Z25
	C 124 (B,106,42)		CKSRYF104Z25
	C 127 (B,220,76)		CKSRYF104Z25
	C 128 (A,225,64)		CEAL101M10
	C 129 (B,115,67)		CKSRYF104Z25
	C 132 (B,117,67)		CKSRYF104Z25
	C 133 (B,102,70)		CKSRYF104Z25
	C 134 (B,54,36)		CKSRYF104Z25
	C 135 (B,54,48)		CKSRYF104Z25
	C 201 (B,76,13)		CKSRYF104Z25
	C 202 (B,57,27)		CKSRYF104Z25
	C 204 (B,96,26)		CKSRYF104Z25
	C 270 (B,143,28)		CKSRYF104Z25

C SERVICE FRJB ASSY

MISCELLANEOUS

Mark	No.	Description	Part No.
	JA 301 (A,211,31)	4P MINIDIN SOCKET(S)	AKP1238
	JA 302 (A,181,32)	JACK	VKB1208
	KN 301 (A,232,17)	WRAPPING TERMINAL	VNF1084
	KN 302 (A,154,17)	WRAPPING TERMINAL	VNF1084
	CN 301 (A,198,7)	CONNECTOR	HLEM11S-1

RESISTORS

Mark	No.	Description	Part No.
	R 303 (B,181,16)		RS1/16S0R0J
	R 305 (B,178,15)		RS1/16S0R0J
	R 306 (B,165,15)		RS1/16S0R0J

CAPACITORS

Mark	No.	Description	Part No.
	C 303 (B,181,20)		CCSRCH471J50
	C 305 (B,162,18)		CCSRCH471J50

D SERVICE MAIN ASSY (DVR-660H-K)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC 201		K4S641632K-UC60
	IC 501		BD7956FS
	IC 1001		MC-10050F1-507LU1A
	IC 1102		VYW2410
	IC 1201,1221		EDD5116AFTA-6B-E
	IC 1301,1302		NJM12904V
	IC 3101		AK5359ET
	IC 3201		PCM1742KE
	IC 3202		UPC4570G2-A
	IC 3701		TC7WH34FU
	IC 3702,5203		TC7SH08FUS1
	IC 3707		PST3813U
⚠	IC 4501,4502		CEK1285
	IC 4511		S-1170B33UC-OTS
	IC 4521		S-1170B25UC-OTK
	IC 4531		MM1701WH
	IC 4541		MM1563DF
	IC 4552		S-1170B50UC-OUJ
	IC 4561		S-1112B50MC-L7J
	IC 4562		S-1112B33MC-L6S
	IC 4571		S-1132B18-U5
	IC 5103		UPD72852AGB-8EU-A
	IC 5151		TC7MBL3257AFK
	IC 5202		R5523N001B
	IC 5204		R1173H001B
	IC 5602		88SA8040B1-TBC1
	IC 5801		SII9002CSU
	IC 5803		TC7WPB306FK
	IC 5804		TC7WB125FK
	Q 102		RT1N141U
	Q 1801,1811,2501-2505		2SA1576A
	Q 3301,3303,3305,3307		2SA1576A
	Q 3302,3304,3306,3308		2SC4081
	Q 4581,5701		2SC4081
	Q 5801		HN1C01FU
	Q 5802		UMB1N
	Q 5804		DTC124EUA
	Q 5805		2SA1576A
	Q 5808		2SK2034
	Q 5810		UMF21N
	D 3201		DAN202U
	D 4521,4552,4571		RB501V-40

MISCELLANEOUS

Mark	No.	Description	Part No.
	L 105	CHIP COIL	BTH1103
	L 1001-1004,1021-1025	EMI FILTER	DTL1106
	L 1005	INDUCTOR	LCTC150K2125
	L 1801	CHIP COIL	LCYA390J2520
	L 1811	INDUCTOR	LCYA150J2520
	L 1821,1831,5122,5601	EMI FILTER	DTL1106
	L 3301,3303,3305,3307	CHIP COIL	LCYA180J2520
	L 3302,3304,3306,3308	INDUCTOR	LCYA100J2520
	L 5101	INDUCTOR	CTF1305
	L 5201,5202	COIL	ATH7015
	L 5701	INDUCTOR	CTF1382
	L 5801-5804	EMI FILTER	ATF1209
	L 5805	EMI FILTER	DTL1106
	JA 5701	JACK	VKB1159
	JA 5801	HDMI CONNECTOR	AKP1318
	X 101	CERAMIC RESONATOR (16.934MHZ)	DSS1157
	X 1001	CRYSTAL RESONATOR (24.576MHZ)	VSS1220
	X 1002	CRYSTAL RESONATOR (27MHZ)	VSS1172
	X 5101	CRYSTAL (24.576MHZ)	VSS1211
	X 5201	CRYSTAL (48MHZ)	VSS1218
	X 5502	CRYSTAL (25MHZ)	VSS1214
	CN 101	CONNECTOR	DKN1404
	CN 201	CONNECTOR	VKN2029
	CN 501	CONNECTOR	DKN1312
	CN 502	4P CONNECTOR	DKN1288
	CN 601	5P CONNECTOR	DKN1402
	CN 1401	CONNECTOR	VKN2030
	CN 1402	07P CONNECTOR	RKN1048
	CN 1501	50P B TO B CONNECTOR	VKN2079
	CN 2301	40P CONNECTOR	VKN2065
	CN 3801	CONNECTOR	CKS5321
	CN 4501	KR CONNECTOR	S13B-PH-K-S

Mark	No.	Description	Part No.
	CN 5101	CONNECTOR	VKN1932
	CN 5201	CONNECTOR	VKN1936
	CN 5604	SATA PLUG HEADER	VKN2077
		HEATSINK(AL)	VNH1079
		SCREW	BBZ30P060FTC
		RADIATION SHEET	VEB1360

RESISTORS

Mark	No.	Description	Part No.
	R 174		RS1/16S4701F
	R 204-206,317-320		RAB4CQ330J
	R 219,220		RAB4CQ472J
	R 271,273,274,3230		RS1/10S0R0J
	R 501		DCN1171
	R 502		DCN1172
	R 510,511		RS1/10S1R8J
	R 1003		RS1/16S6800F
	R 1004,1301,3306,3312		RS1/16S4700F
	R 1032-1035,1411,3005		RAB4CQ103J
	R 1036,1039		RS1/16S43R0D
	R 1037,1040		RS1/16S1000F
	R 1241,1242,1248,1249		RAB4CQ0R0J
	R 1245,1246,1255,1256		RAB4CQ220J
	R 1261,1262,1268,1269		RAB4CQ0R0J
	R 1265,1266,1273,1274		RAB4CQ220J
	R 1281-1283,1287		RAB4CQ470J
	R 1302,1303,1312,1313		RS1/16S1001F
	R 1314,2506,4574,4575		RS1/16S0R0J
	R 1505-1513		RAB4CQ0R0J
	R 2502,2505,2508,2511		RS1/16S1500F
	R 2514		RS1/16S1500F
	R 3210,3216		RN1/16SE1201D
	R 3211,3217		RN1/16SE1002D
	R 3218,3223		RN1/16SE2202D
	R 3307,3313,3324,3325		RS1/16SS5601F
	R 3318,3323		RS1/16S4700F
	R 3810-3813,3837-3840		RAB4CQ330J
	R 3824		RAB4CQ820J
	R 3828-3833		RAB4CQ223J
	R 3851,5632,5638,5642		RAB4CQ330J
	R 4501,4551-4554,4556		RS1/10S0R0J
	R 4504,4505,4507		RS1/10S272J
	R 4716,4717		RAB4CQ103J
	R 4721,4722		RAB4CQ101J
	R 5101,5102		RAB4CQ104J
	R 5105,5106		RAB4CQ680J
	R 5118		RN1/16SE9101D
	R 5119-5122		RS1/16S56R0D
	R 5131		RN1/16SE5101D
	R 5203		RS1/16S3301F
	R 5204		RS1/16S8200F
	R 5220		RS1/16S1501F
	R 5445,5819,5820		RS1/10S0R0J
	R 5646		RAB4CQ330J
	R 5651		RS1/16S1202F
	R 5664,5672,5705,5830		RS1/16S0R0J
	R 5706		RS1/16S75R0F
	R 5825-5828		RAB4CQ220J
	R 5855		RAB4CQ100J
	Other Resistors		RS1/16SS###J

CAPACITORS

Mark	No.	Description	Part No.
	C 100,101,105,117		CKSSYB102K50
	C 103,1009		VCH1234
	C 104,154,162,1004		VCG1057
	C 106,159,167,288		CKSSYF104Z16
	C 107		CKSSYB681K50
	C 113,114		CKSSYB472K25
	C 115,135,144,145		CKSSYB103K16
	C 116,120,124,128		CKSSYB104K10
	C 121,122		CKSSYB222K50
	C 125,129,280-285		VCG1058
	C 127,1805,1815		CKSSYB473K10
	C 130,181,194,4511		CKSQYB475K6R3
	C 131		CKSSYB683K10
	C 133,134,136,169		CKSSYB104K10
	C 137		CKSSYB682K25
	C 140,141,155		DCH1199
	C 142,143,146,180		DCH1201
	C 147,148		DCH1198
	C 149,157,158,187		CKSSYB103K16
	C 152,164,189,289		CKSSYB102K50
	C 153,1020,4516		CEVW100M16
	C 156		CKSSYB182K50
	C 163,1007,3108,3219		CEVW221M4
	C 165,166,176,177		CCSSCH220J50
	C 170,172-174		CCSSCH470J50
	C 171,197,504,516		CKSSYB104K10
	C 182,286,1021,1051		DCH1201
	C 188,1058,1205,1206		CKSSYB103K16
	C 287,2305,4522,4531		VCG1058
	C 290,501,1057,1060		CKSSYF104Z16
	C 291,508,1005,1011		CKSSYB102K50
	C 502		DCH1263
	C 503		CKSRYB471K50
	C 505,514,515		CKSRYB104K25
	C 509		CCSSCH330J50
	C 510,3304,3317,3323		CCSSCH680J50
	C 511		CKSQYB105K16
	C 512,513,803,832		CKSRYF104Z16
	C 532,1001,1002		CKSSYB104K10
	C 824		CKSQYF104Z25
	C 1003,1024,1036,1039		CEVW101M4
	C 1006,1008,1010,1013		VCG1057
	C 1012,1215,1236		VCH1268
	C 1014,1023,1026,1038		CKSSYB102K50
	C 1015-1019,1027-1035		CKSSYB104K10
	C 1022,1025,1037,1040		VCG1057
	C 1041,1049,1053,1061		CKSSYB102K50
	C 1042,1043		CCSSCJ3R0C50
	C 1044,1045,3303,3316		CCSSCH5R0C50
	C 1047		CKSSYB104K10
	C 1048,1052,1056,1059		VCG1057
	C 1050,5121,5122,5613		CEVW101M4
	C 1062,1066,1102,1104		VCG1057
	C 1063,1067,1105,1203		CKSSYF104Z16
	C 1064,1065,1068,1101		CKSSYB102K50
	C 1103,1207,1209,1210		CKSSYB102K50
	C 1113,1202,1204,1208		VCG1057
	C 1211-1214,1222,1230		CKSSYF104Z16

Mark	No.	Description	Part No.
	C 1216-1221,1223,1227		VCG1057
	C 1224,1225,1401,3701		CKSSYB103K16
	C 1226,1228,1229,1504		CKSSYB102K50
	C 1231,1235,1316,1501		DCH1201
	C 1291,1302,1303,1312		CKSSYF104Z16
	C 1301,1315,1802,1812		CKSQYB225K10
	C 1304,3207,4515		CEVW470M6R3
	C 1313,1503,3105,3202		CKSSYF104Z16
	C 1421,1502,1801,1811		VCG1057
	C 1803		CCSSCH221J50
	C 1804,3204		CKSSYB331K50
	C 1813		CCSSCH101J50
	C 1814		CCSSCH151J50
	C 2501-2505,3104,3107		VCG1057
	C 2506,3704,4534,5151		DCH1201
	C 3103,3211,3218,4507		CEVW101M16
	C 3106,3203,3705,3706		CKSSYB102K50
	C 3201		CEAT102M6R3
	C 3206,3212,3217,4504		CKSSYF104Z16
	C 3213,3214		CKSSYB561K50
	C 3215,3216		CCSSCH820J50
	C 3220,3332-3335		VCG1057
	C 3301,3302,3311,3312		CCSRCH7R0D50
	C 3305,3318,3324,3331		CCSSCH150J50
	C 3307,3313,3319,3325		CKSRYB105K10
	C 3314,3315,3320,3321		CCSRCH7R0D50
	C 3322,3329		CCSSCH5R0C50
	C 3330		CCSSCH680J50
	C 3339-3342,3703,3707		VCG1057
	C 3738,3803,3804		VCG1057
	C 4501-4503,4505		VCG1057
	C 4506,4585,5104,5109		CKSSYF104Z16
	C 4508,4509,4572,5809		CEVW221M4
	C 4513,4524,4525,4555		CKSQYB475K6R3
	C 4532,4557,5604-5611		CKSSYB103K16
	C 4533,4541,4562,4563		VCG1058
	C 4535-4537,4539,4540		CKSSYB102K50
	C 4542,5212		CKSQYB225K10
	C 4543,5154,5211,5216		CKSSYB102K50
	C 4556,4571,4573		CKSQYB475K6R3
	C 4558,4559,4581,4586		CEVW101M16
	C 4567,4570,5217		VCG1058
	C 5105-5108,5110-5112		VCG1057
	C 5113,5114,5153,5209		CKSSYF104Z16
	C 5115,5116,5120,5123		VCG1057
	C 5117,5118,5640,5641		CCSSCH120J50
	C 5119		CKSSYB271K50
	C 5132,5133,5152,5205		VCG1057
	C 5210		CEVW101M16
	C 5213,5601,5602,5702		VCG1057
	C 5218,5219,5223,5706		CKSSYB102K50
	C 5222,5603,5612,5615		CKSSYF104Z16
	C 5614,5617,5622-5632		CKSSYB103K16
	C 5616,5812,5813		CKSSYF104Z16
	C 5704		CEVW1R0M50
	C 5801,5803,5805-5808		VCG1057
	C 5802,5804,5819		CKSSYB102K50
	C 5814		CKSRYF104Z16
	C 5815-5818		CKSRYB104K25
	C 5820,5824,5826		VCG1057
	C 5821-5823,5825		CKSSYB102K50

D SERVICE MAIN ASSY (DVR-560H-K,DVR-460H-K)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC 201		K4S641632K-UC60
	IC 501		BD7956FS
	IC 1001		MC-10050F1-507LU1A
	IC 1102		VYW2410
	IC 1201,1221		EDD5116AFTA-6B-E
	IC 1301,1302		NJM12904V
	IC 3101		AK5359ET
	IC 3201		PCM1742KE
	IC 3202		UPC4570G2-A
	IC 3701		TC7WH34FU
	IC 3702,5203		TC7SH08FUS1
	IC 3707		PST3813U
⚠	IC 4501,4502		CEK1285
	IC 4511		S-1170B33UC-OTS
	IC 4521		S-1170B25UC-OTK
	IC 4531		MM1701WH
	IC 4541		MM1563DF
	IC 4552		S-1170B50UC-OUJ
	IC 4561		S-1112B50MC-L7J
	IC 4562		S-1112B33MC-L6S
	IC 4571		S-1132B18-U5
	IC 5103		UPD72852AGB-8EU-A
	IC 5151		TC7MBL3257AFK
	IC 5202		R5523N001B
	IC 5204		R1173H001B
	IC 5602		88SA8040B1-TBC1
	IC 5801		SII9002CSU
	IC 5803		TC7WPB306FK
	IC 5804		TC7WB125FK
	Q 102		RT1N141U
	Q 1801,1811,2501-2505		2SA1576A
	Q 3301,3303,3305,3307		2SA1576A
	Q 3302,3304,3306,3308		2SC4081
	Q 4581,5701		2SC4081
	Q 5801		HN1C01FU
	Q 5802		UMB1N
	Q 5804		DTC124EUA
	Q 5805		2SA1576A
	Q 5808		2SK2034
	Q 5810		UMF21N
	D 3201		DAN202U
	D 4521,4552,4571		RB501V-40

MISCELLANEOUS

Mark	No.	Description	Part No.
	L 105	CHIP COIL	BTH1103
	L 1001-1004,1021-1025	EMI FILTER	DTL1106
	L 1005	INDUCTOR	LCTC150K2125
	L 1801	CHIP COIL	LCYA390J2520
	L 1811	INDUCTOR	LCYA150J2520
	L 1821,1831,5122,5601	EMI FILTER	DTL1106
	L 3301,3303,3305,3307	CHIP COIL	LCYA180J2520
	L 3302,3304,3306,3308	INDUCTOR	LCYA100J2520

Mark	No.	Description	Part No.
L	5101	INDUCTOR	CTF1305
L	5201,5202	COIL	ATH7015
L	5701	INDUCTOR	CTF1382
L	5801-5804	EMI FILTER	ATF1209
L	5805	EMI FILTER	DTL1106
JA	5701	JACK	VKB1159
JA	5801	HDMI CONNECTOR	AKP1318
X	101	CERAMIC RESONATOR (16.934MHz)	DSS1157
X	1001	CRYSTAL RESONATOR (24.576MHz)	VSS1220
X	1002	CRYSTAL RESONATOR (27MHZ)	VSS1172
X	5101	CRYSTAL (24.576MHz)	VSS1211
X	5201	CRYSTAL (48MHz)	VSS1218
X	5502	CRYSTAL (25MHz)	VSS1214
CN	101	CONNECTOR	DKN1404
CN	201	CONNECTOR	VKN2029
CN	501	CONNECTOR	DKN1312
CN	502	4P CONNECTOR	DKN1288
CN	601	5P CONNECTOR	DKN1402
CN	1401	CONNECTOR	VKN2030
CN	1402	07P CONNECTOR	RKN1048
CN	2301	40P CONNECTOR	VKN2065
CN	3801	CONNECTOR	CKS5321
CN	4501	KR CONNECTOR	S13B-PH-K-S
CN	5101	CONNECTOR	VKN1932
CN	5201	CONNECTOR	VKN1936
CN	5604	SATA PLUG HEADER	VKN2077
		HEATSINK(AL)	VNH1079
		SCREW	BBZ30P060FTC
		RADIATION SHEET	VEB1360

RESISTORS

Mark	No.	Description	Part No.
R	174		RS1/16S4701F
R	204-206,317-320		RAB4CQ330J
R	219,220		RAB4CQ472J
R	271,273,274,3230		RS1/10S0R0J
R	501		DCN1171
R	502		DCN1172
R	510,511		RS1/10S1R8J
R	1003		RS1/16S6800F
R	1004,1301,3306,3312		RS1/16S4700F
R	1032-1035,1411,3005		RAB4CQ103J
R	1036,1039		RS1/16S43R0D
R	1037,1040		RS1/16S1000F
R	1241,1242,1248,1249		RAB4CQ0R0J
R	1245,1246,1255,1256		RAB4CQ220J
R	1261,1262,1268,1269		RAB4CQ0R0J
R	1265,1266,1273,1274		RAB4CQ220J
R	1281-1283,1287		RAB4CQ470J
R	1302,1303,1312,1313		RS1/16S1001F
R	1314,2506,4574,4575		RS1/16S0R0J
R	2502,2505,2508,2511		RS1/16S1500F
R	2514		RS1/16S1500F
R	3210,3216		RN1/16SE1201D
R	3211,3217		RN1/16SE1002D
R	3218,3223		RN1/16SE2202D
R	3307,3313,3324,3325		RS1/16SS5601F
R	3318,3323		RS1/16S4700F
R	3810-3813,3837-3840		RAB4CQ330J
R	3824		RAB4CQ820J
R	3828-3833		RAB4CQ223J
R	3851,5632,5638,5642		RAB4CQ330J
R	4501,4551-4554,4556		RS1/10S0R0J
R	4504,4505,4507		RS1/10S272J
R	4716,4717		RAB4CQ103J
R	4721,4722		RAB4CQ101J
R	5101,5102		RAB4CQ104J
R	5105,5106		RAB4CQ680J
R	5118		RN1/16SE9101D
R	5119-5122		RS1/16S56R0D
R	5131		RN1/16SE5101D
R	5203		RS1/16S3301F
R	5204		RS1/16S8200F
R	5220		RS1/16S1501F
R	5445,5819,5820		RS1/10S0R0J
R	5646		RAB4CQ330J
R	5651		RS1/16S1202F
R	5664,5672,5705,5830		RS1/16S0R0J
R	5706		RS1/16S75R0F
R	5825-5828		RAB4CQ220J
R	5855		RAB4CQ100J
Other Resistors			RS1/16SS###J

CAPACITORS

Mark	No.	Description	Part No.
C	100,101,105,117		CKSSYB102K50
C	103,1009		VCH1234
C	104,154,162,1004		VCG1057
C	106,159,167,288		CKSSYF104Z16
C	107		CKSSYB681K50
C	113,114		CKSSYB472K25
C	115,135,144,145		CKSSYB103K16
C	116,120,124,128		CKSSYB104K10
C	121,122		CKSSYB222K50
C	125,129,280-285		VCG1058
C	127,1805,1815		CKSSYB473K10
C	130,181,194,4511		CKSQYB475K6R3
C	131		CKSSYB683K10
C	133,134,136,169		CKSSYB104K10
C	137		CKSSYB682K25
C	140,141,155		DCH1199
C	142,143,146,180		DCH1201
C	147,148		DCH1198
C	149,157,158,187		CKSSYB103K16
C	152,164,189,289		CKSSYB102K50
C	153,1020,4516		CEVW100M16
C	156		CKSSYB182K50
C	163,1007,3108,3219		CEVW221M4
C	165,166,176,177		CCSSCH220J50
C	170,172-174		CCSSCH470J50
C	171,197,504,516		CKSSYB104K10
C	182,286,1021,1051		DCH1201
C	188,1058,1205,1206		CKSSYB103K16
C	287,2305,4522,4531		VCG1058
C	290,501,1057,1060		CKSSYF104Z16
C	291,508,1005,1011		CKSSYB102K50
C	502		DCH1263
C	503		CKSRYB471K50
C	505,514,515		CKSRYB104K25
C	509		CCSSCH330J50
C	510,3304,3317,3323		CCSSCH680J50
C	511		CKSQYB105K16

Mark	No.	Description	Part No.
C	512,513,803,832		CKSRYF104Z16
C	532,1001,1002		CKSSYB104K10
C	824		CKSQYF104Z25
C	1003,1024,1036,1039		CEVW101M4
C	1006,1008,1010,1013		VCG1057
C	1012,1215,1236		VCH1268
C	1014,1023,1026,1038		CKSSYB102K50
C	1015-1019,1027-1035		CKSSYB104K10
C	1022,1025,1037,1040		VCG1057
C	1041,1049,1053,1061		CKSSYB102K50
C	1042,1043		CCSSCJ3R0C50
C	1044,1045,3303,3316		CCSSCH5R0C50
C	1047		CKSSYB104K10
C	1048,1052,1056,1059		VCG1057
C	1050,5121,5122,5613		CEVW101M4
C	1062,1066,1102,1104		VCG1057
C	1063,1067,1105,1203		CKSSYF104Z16
C	1064,1065,1068,1101		CKSSYB102K50
C	1103,1207,1209,1210		CKSSYB102K50
C	1113,1202,1204,1208		VCG1057
C	1211-1214,1222,1230		CKSSYF104Z16
C	1216-1221,1223,1227		VCG1057
C	1224,1225,1401,3701		CKSSYB103K16
C	1226,1228,1229,3106		CKSSYB102K50
C	1231,1235,1316,2506		DCH1201
C	1291,1302,1303,1312		CKSSYF104Z16
C	1301,1315,1802,1812		CKSQYB225K10
C	1304,3207,4515		CEVW470M6R3
C	1313,3105,3202,3206		CKSSYF104Z16
C	1421,1801,1811		VCG1057
C	1803		CCSSCH221J50
C	1804,3204		CKSSYB331K50
C	1813		CCSSCH101J50
C	1814		CCSSCH151J50
C	2501-2505,3104,3107		VCG1057
C	3103,3211,3218,4507		CEVW101M16
C	3201		CEAT102M6R3
C	3203,3705,3706		CKSSYB102K50
C	3212,3217,4504,4506		CKSSYF104Z16
C	3213,3214		CKSSYB561K50
C	3215,3216		CCSSCH820J50
C	3220,3332-3335		VCG1057
C	3301,3302,3311,3312		CCSRCH7R0D50
C	3305,3318,3324,3331		CCSSCH150J50
C	3307,3313,3319,3325		CKSRYB105K10
C	3314,3315,3320,3321		CCSRCH7R0D50
C	3322,3329		CCSSCH5R0C50
C	3330		CCSSCH680J50
C	3339-3342,3703,3707		VCG1057
C	3704,4534,5151		DCH1201
C	3738,3803,3804		VCG1057
C	4501-4503,4505		VCG1057
C	4508,4509,4572,5809		CEVW221M4
C	4513,4524,4525,4555		CKSQYB475K6R3
C	4532,4557,5604-5611		CKSSYB103K16
C	4533,4541,4562,4563		VCG1058
C	4535-4537,4539,4540		CKSSYB102K50
C	4542,5212		CKSQYB225K10
C	4543,5154,5211,5216		CKSSYB102K50

Mark	No.	Description	Part No.
C	4556,4571,4573		CKSQYB475K6R3
C	4558,4559,4581,4586		CEVW101M16
C	4567,4570,5217		VCG1058
C	4585,5104,5109,5113		CKSSYF104Z16
C	5105-5108,5110-5112		VCG1057
C	5114,5153,5209,5222		CKSSYF104Z16
C	5115,5116,5120,5123		VCG1057
C	5117,5118,5640,5641		CCSSCH120J50
C	5119		CKSSYB271K50
C	5132,5133,5152,5205		VCG1057
C	5210		CEVW101M16
C	5213,5601,5602,5702		VCG1057
C	5218,5219,5223,5706		CKSSYB102K50
C	5603,5612,5615,5616		CKSSYF104Z16
C	5614,5617,5622-5632		CKSSYB103K16
C	5704		CEVW1R0M50
C	5801,5803,5805-5808		VCG1057
C	5802,5804,5819		CKSSYB102K50
C	5812,5813		CKSSYF104Z16
C	5814		CKSRYF104Z16
C	5815-5818		CKSRYB104K25
C	5820,5824,5826		VCG1057
C	5821-5823,5825		CKSSYB102K50

E ETAB ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
IC	101		UPD99914F1-BAC
IC	181		TC4SU69F
IC	182		TC7SZU04FU
IC	201,202		TC74VCX163245FT
IC	203		TC7MP3125FK
IC	301		LAN9211-ABZJ
IC	401		S-1133B00-U5
IC	411		S-1133B12-U5

MISCELLANEOUS

Mark	No.	Description	Part No.
L	321,331	COIL	VTH1056
F	171,301	EMI FILTER	DTL1106
JA	301	RJ45 CONNECTOR TRNS	VKN2078
X	101	CRYSTAL OSCILLATOR (32.768Khz)	ASS1172
X	301	CRYSTAL (25Mhz)	VSS1214
CN	501	50P B TO B CONNECTOR	VKN2080

RESISTORS

Mark	No.	Description	Part No.
R	111-114		RAB4CQ103J
R	185		RS1/16S0R0J
R	203-210		RAB4CQ220J
R	213-220		RAB4CQ100J
R	304		RAB4CQ473J
R	306-309		RS1/10SR49R9F
R	310		RS1/10SR10R0F
R	311		RS1/16SS1202F
R	403		RS1/16S56R0D
R	404		RS1/16S2001D
	Other Resistors		RS1/16SS###J

CAPACITORS

Mark	No.	Description	Part No.
C	104,106,108,110		VCG1057
C	105,107,109,111		CKSSYB102K50
C	144,146,148,172		VCG1057

Mark	No.	Description	Part No.
	C 145,147,149,173		CKSSYB102K50
	C 171,301		CEVW101M4
	C 181,201,204,310		DCH1201
	C 182,184,202,205		VCG1057
	C 183,185,189,203		CKSSYB102K50
	C 186		CCSSCH270J50
	C 187		CCSSCH220J50
	C 188		CKSSYB104K16
	C 206,212,214,222		CKSSYB102K50
	C 211,213,221,223		VCG1057
	C 220,324,401,411		VCH1268
	C 224,303,305,307		CKSSYB102K50
	C 302,304,308,311		VCG1057
	C 306,312,320,341		CKSSYF104Z16
	C 309,313,315,317		CKSSYB102K50
	C 314,316,318,325		VCG1057
	C 319,321,326,342		CKSSYB102K50
	C 327,328		CCSSCH120J50
	C 340		CKSRYB223K50
	C 343,404,414,416		CKSSYB102K50
	C 402,412,415		VCG1058
	C 403,413,417		CKSSYF104Z16
	C 418		VCG1057
	C 419		VCH1234

F SERVICE DVUB ASSY

MISCELLANEOUS

Mark	No.	Description	Part No.
	L 904	(B,218,44) CHIP FERRITE BEADS	VTL1169
	L 905	(B,217,28) CHIP FERRITE BEADS	VTL1169
	L 907	(B,220,10) CHIP FERRITE BEADS	VTL1169
	L 908	(B,217,9) CHIP FERRITE BEADS	VTL1169
	JA 901	(A,204,59) 1394-TERMINAL	VKN2028
	JA 902	(A,203,37) USB CONNECTOR	VKB1226
	JA 903	(A,220,15) USB CONNECTOR	VKB1227
	CN 901	(A,231,57) CONNECTOR	VKN1932
	CN 902	(A,231,30) CONNECTOR	VKN1936

RESISTORS

Mark	No.	Description	Part No.
	R 901	(B,222,52)	RS1/16S0R0J
	R 902	(B,222,55)	RS1/16S0R0J
	R 903	(B,222,63)	RS1/16S0R0J
	R 904	(B,222,67)	RS1/16S0R0J
	R 905	(B,223,40)	RS1/16S330J
	R 906	(B,223,38)	RS1/16S330J
	R 907	(B,223,19)	RS1/16S330J
	R 908	(A,226,57)	RS1/16S0R0J
	R 909	(B,223,21)	RS1/16S330J
	R 912	(A,227,69)	RS1/16S0R0J

CAPACITORS

Mark	No.	Description	Part No.
	C 905	(B,229,35)	CKSRYF105Z10
	C 906	(A,228,18)	CKSRYF105Z10
	C 907	(B,216,49)	CKSRYF104Z25
	C 908	(B,212,67)	CKSRYF104Z2

Mark	No.	Description	Part No.

G POWER SUPPLY ASSY

POWER SUPPLY ASSY has no service part.